

A MODEL FOR RURAL ROAD MAINTENANCE IN ZAÏRE

by

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Submitted to the Department of Urban Studies and Planning on May 15, 1990
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ABSTRACT

The maintenance of the world's roads is lagging far behind their rate of deterioration, particularly in developing countries. Based on recent research in Zaïre, this thesis evaluates private sector road maintenance contracting as an answer to the road maintenance crisis. Government and private sector support for privately contracted road maintenance is strong in Zaïre, although its expansion would require a major restructuring of existing government maintenance services. I explore the hidden costs and benefits of privately contracted manual road maintenance, and show it in the Zaïrean case to be an illusory solution.

The second half of the thesis explores an alternative approach to maintenance based on promoting local initiative for road maintenance by the road users who need it most. This "local" model takes the financial distortions out of road maintenance motivations by cutting national and international subsidies to road work, and ties road user benefits to road maintenance costs at the local level. Key arguments for this approach are the cost-ineffectiveness of road rehabilitation because of very low rural traffic levels and the expectation that traffic levels will continue to fall because of worsening economic conditions. National and regional policies encouraging local minimal road maintenance initiatives provide the only sustainable approach for Zaïrean rural transport in the foreseeable future. This conclusion may also be extended to other Sub-Saharan countries facing similar long-term administrative and economic crisis and decline.

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ACRONYMS USED

ADT:	Average Daily Traffic
ERR:	Economic Rate of Return
GDP:	Gross Domestic Product
GNP:	Gross National Product
GOZ:	Government of Zaïre
INSS:	Institut National de Sécurité Sociale
OFIDA:	Customs Office
ONATRA:	Office National des Transport
OR:	Office des Routes
PDO:	USAID Kinshasa Project Design and Operations Office
PVO:	Private Voluntary Organization
RRC:	Regional Road Commission
SNCZ:	Société Nationale des Chemins de Fer Zaïrois
SNRDA:	Société Nationale des Routes de Desserte Agricole
UP:	Unité de Production, OR road work logistical center
USAID:	United States Agency for International Development

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Cit. Sebagisha, Coordonnateur Regional adjoint of SNRDA, travelled with me in Bandundu. Similarly, Cit. Tsumbu, Coordonnateur Regional SNRDA, and Cit. Morisho, Adjoint Technique Regional OR, accompanied me in Shaba. Their contributions in time and insight were essential to this report.

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INTRODUCTION

The maintenance of the world's roads is lagging far behind their rate of deterioration. Inadequate past maintenance and new construction have greatly aggravated road deterioration and its costs, while the urgency of major repairs and rehabilitation has caused postponement or suspension of more economical routine maintenance. The road maintenance crisis is most advanced in developing countries, where the World Bank estimated that more than \$90 billion worth of road infrastructure has been destroyed because of inadequate maintenance in the past twenty years. This loss could have been averted with preventive maintenance costing less than \$24 billion.¹ The total economic impacts of lost road capital investments are even greater and many countries realize that they can no longer afford such enormous inefficiencies.

The types of roads most greatly at risk in the road maintenance crisis are unpaved rural roads. These comprise the vast majority of developing country road networks but are most difficult to access and monitor for maintenance. They deteriorate far more rapidly than paved roads, yet they have the weakest constituency to advocate their repair. Most importantly, the economic cost-effectiveness of their maintenance is the most difficult to justify, and they are the first roads on which maintenance subsidies are abandoned by central governments and donors.

The World Bank's HDM-III road maintenance model shows that the cost of lost infrastructure in road deterioration is only a small fraction of the wider capital cost of reduced transport productivity. In the case of low-volume rural roads, however, this major economic justification for road maintenance does not hold true. The model estimates that most low-volume rural roads carrying fewer than 20 vehicles a day (comprising the great majority of rural roads in the poorest countries) are too expensive to maintain relative to the few users and low value added which they generate. Scarce

maintenance resources, the model suggests, should be concentrated on high volume urban roads and strategic export highways, where the capital value of goods transported and time saved is much more significant.

The HDM-III model can be criticized for, among other weaknesses, not adequately considering the eventual costs of isolating rural populations. National governments, in any any case, have political reasons to not forsake their rural networks. As Cooke points out (1988), rural roads are essential for the state to secure its mandate over rural people, to feed burgeoning urban populations, and to dampen disequilibria in national development which often lead to rebellion or civil war. Nonetheless, it is clear that rural roads are not a high priority of central governments in these times of general crisis, nor are they likely to become one in the foreseeable future.

The options for rural road refinancing are limited. Funds for rural unpaved road maintenance are unlikely to be transferred from budgets outside of road transportation, as inadequate maintenance is an endemic problem straining all state services. Nor are funds likely to be reallocated from the maintenance of paved roads or from urban areas, which already heavily subsidize rural unpaved roads. Some resources may be gained by reorienting road investment priorities from new construction to maintenance. In foreign aid, such a refocusing has already taken place, with few new savings to be made.² Finally, more resources could be generated from new local taxes and road user charges. Yet given the highly inefficient collection of local taxes in developing countries, local levies for road maintenance will only work if they are also expended in highly decentralized form at the local level.

My thesis investigates a trend held as highly promising in the international road maintenance literature: the organization of contracted manual labor, which reduces the road maintenance foreign exchange requirements of mechanization and technical assistance. Reliance on manual road maintenance is as old as human civilization, but it is a new and uncertain challenge for many developing country road administrations. While densely populated countries with dynamic private sectors such as Pakistan and

Bangladesh have shown considerable success with contracted manual road maintenance, it has rarely been implemented successfully in sub-Saharan Africa.

Sub-Saharan road maintenance research by government and donors is now particularly pressing and intense in Zaïre. My involvement in road contracting research last summer gives me a personal view of Zaïrean road maintenance. I reject private sector contracting managed by national or regional road administrations as a systematic approach to rural road maintenance. I advocate instead self-initiated and implemented road maintenance at the local level, with no external rehabilitation or maintenance contracts or other subsidies. Unlike some consultant reports which assume that well maintained roads will automatically lead to their increased use, I seriously consider the rural withdrawal from the national economy which has already substantially taken place in Zaïre. I believe that my approach is also appropriate to many other declining sub-Saharan African economies with scattered populations, weak private sectors, minimal communications, financial instability, limited access to foreign technology and technical assistance, and low public sector discipline and morale.

I differentiate the “local” model from currently implemented systems of manual, mechanized, contracted and in-house maintenance in Zaïre and the assumptions of orderly operation behind them. I argue that only policies successfully encouraging local initiative may forestall the abandonment of much of the rural network and provide a cost-effective and sustainable framework for prolonging the use of Zaïre’s rural roads.

Chapter 1 of my thesis presents Zaïre’s road maintenance logistics, actors, institutions, and basic constraints to current effective road maintenance. Contrary to most road maintenance literature, I rely on a political economy more than an engineering perspective, in recognition of the fact that engineering decisions play only a minor role in the efficiency of road maintenance in Zaïre. I focus on the historical context of Zaïrean road maintenance in order to ground the current road maintenance crisis in terms not only of organizational failures, but of profound socio-economic change.

Zaire's large donors, most notably the World Bank and USAID, currently assume that the development of private sector contracting provides the best hope for improved road maintenance in Zaire. Chapter 2 provides an analysis of the performance record and potential of Zairean contracted manual maintenance. I explore why government support for contracted maintenance is strong, even though its development requires a severe whittling of established government maintenance services. Based largely on data which I collected in the summer of 1989, I survey contractor characteristics and experience, and elucidate the complex motives in their expressions of interest.

Chapter 3 provides an alternative to contracted maintenance which focuses on policy changes that tie road user benefits to road maintenance costs at the local level. The "local" model which I put forward takes financial distortions out of road maintenance motivations by ending national and international subsidies. Instead, it employs national and regional policy to promote an environment where minimal maintenance is more likely to be done spontaneously or through local agreement by the road users who need it most. A key argument for this approach is the cost-ineffectiveness of road rehabilitation because of very low rural traffic level levels.

An unorganized form of the local model is already in effect, as local institutions adjust to the paralysis of nationally administered maintenance. Some rural organizations also continue the tradition of maintenance self-initiative developed before Zairean independence in 1960. I argue that national and regional policies encouraging such local efforts provide the most likely sustainable solution for Zairean rural transport in a time of continued economic decline.

The theoretical importance of my thesis is threefold. First, it contributes to the developing countries' debate over the best institutional approaches to road maintenance. All too often, road maintenance approaches are seen as a simple choice between government force account and privately contracted road maintenance, without considering the removal of government subsidies while encouraging less damaging road use. Second, I explore the hidden costs and benefits of contracted manual road

maintenance and clarify its Zaïrean limits. Finally, I emphasize the political economy of cheap road maintenance availability and feasibility over the engineer's calculation of road use and roughness as the central elements of constrained rural road maintenance planning. My model uses a logical framework in which local supply and willingness to bear the maintenance cost is itself the indicator of local demand, and ultimately, of road maintenance levels and priority.

Zaïre's international donors are actively searching for new approaches and ideas, without being convinced that their favored approaches promoting privatization, contracting and manual technology will succeed. On the practical level, I hope that the information in my thesis will be useful to the Zaïrean government and to donors financing road maintenance in Zaïre. In particular, I will present in quantitative, qualitative and graphical form considerable evidence underscoring the unsustainability of current approaches. My data can be adopted not only in support of my model, but also for the planning of ongoing reform efforts.

I completed the primary research for this thesis as an intern at USAID Zaïre's Project Design and Operations office (PDO) in the summer of 1989. At that time I compiled on disk and analyzed 280 answered questionnaires from organizations interested in maintaining roads (both mechanically and manually) in the Bandundu and Shaba regions of Zaïre. The questionnaires were originally distributed by PDO in October 1988. During six frenetic weeks in Bandundu and Shaba and six weeks in Kinshasa, I interviewed 110 of the responding organizations and made many contacts with government officials responsible for road maintenance. Annex I includes a description and compilation of much of the data supporting my thesis, along with my list of interviews. Annex II provides maps and traffic counts for Zaïre which confirm the low levels of Zaïrean traffic levels. These low levels lie at the heart of an understanding of why the local model can succeed in Zaïre, while a private contractor model cannot.

CHAPTER 1, The Zaïrean context

The magnitude of Zaïre's logistic, climatic, financial and institutional challenges to regular rural road maintenance underlies the failure of all combinations of manual, mechanized, contracted and force account road maintenance approaches in the last thirty years. Zaïre is a vast, sparsely populated river basin imposing immense logistical challenges to its people (see Map 1 in Annex II). Tropical forest covers almost half of Zaïre's land mass of 2.3 million Km² (about one quarter the size of the United States). The country is essentially land-locked, with a mere 30 km of Atlantic coastline. Its greatest natural resource, copper, must travel more than a month by road, rail and barge from the opposite end of the country to Zaïre's only port.

Zaïre's population of 33 million is widely dispersed, providing an overall density of only 14 inhabitants per Km². Much of this population is isolated in remote areas of the country, such as the copper mining centers of Shaba in the southeast. Sparseness of population, combined with one of the world's lowest per capita GNPs (\$150 in 1987), assures that traffic volumes and the economies of scale of infrastructure are low, and that therefore transport is expensive.

Aggregate transportation flows have remained constant at 1.3 passenger-kilometers and 0.6 ton-kilometers a day per capita despite Zaïre's GNP decline of 2.2% per year since 1965.³ This constancy is misleading, however, as transportation flows have shifted dramatically in the past twenty-five years because of a massive withdrawal of vehicles from rural areas, rapid growth of urban traffic, and the development of air travel and cargo.

The primary link in Zaïre's transportation network is the Zaïre river and its tributaries, navigable over 15,000 km. 5,000 km of railways bridge the impassable stretches of the waterway and connect out to the the major mining areas in south Shaba. Feeding

into the river and railway network are 145,000 km of roads, classified into five categories with the following characteristics:

Table 1. Total Extra-Urban Inventoried Road Network

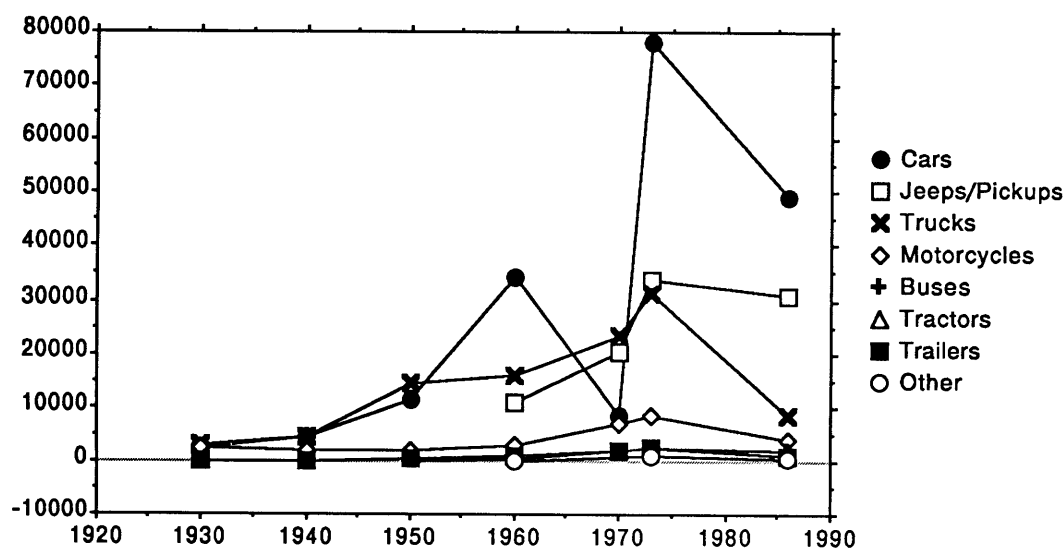
<u>Road Classification</u>	<u>Km</u>	<u>ADT⁴</u>
National Paved Roads	2800	293
National Unpaved Roads	17900	19
Regional Priority Roads	20200	3
Regional Secondary Roads	17100	2
Local Interest Roads	87000	0.25

One might expect the paved network to be given priority for maintenance, because of its far greater traffic flows and strategic nature. A 1984 World Bank survey of developing countries, however, considered only 17% of Zaïre's paved roads in good condition, while 20% were fair (needing resurfacing) and 63% were poor (needing reconstruction). Unpaved roads fared better in the survey, with 61% in good, 25% in fair, and only 14% in poor condition.⁵ I will explain the maintenance favoritism shown to less used roads in Chapter 3. For the moment, it is important to emphasize that economic and institutional blows have drastically accelerated deterioration on all roads since 1984. Having logged more than 4,000 Km in 1989 dry season (best-case) conditions, I can testify that the current quality of most Zaïrean roads is dismal.

There was a time, now considerably enhanced in myth, when virtually all roads were well maintained. Some Belgian road inspectors (so the story goes) would judge road quality by placing a glass of water on the roof of their car and checking it for spills. While the current Zaïrean road administration cannot adequately maintain the 10,000 Km. it limits itself to, the colonial government is generally recognized to have assured good maintenance of over 136,000 Km of roads.⁶ . This astonishing achievement is often viewed merely as a historical testament to the extent of colonial exploitation. Yet the success of colonial road maintenance must be

well understood before considering how to administer the immense network which the Belgians left in legacy.

Figure 1. Zaïre's Vehicle Fleet, 1930-1986

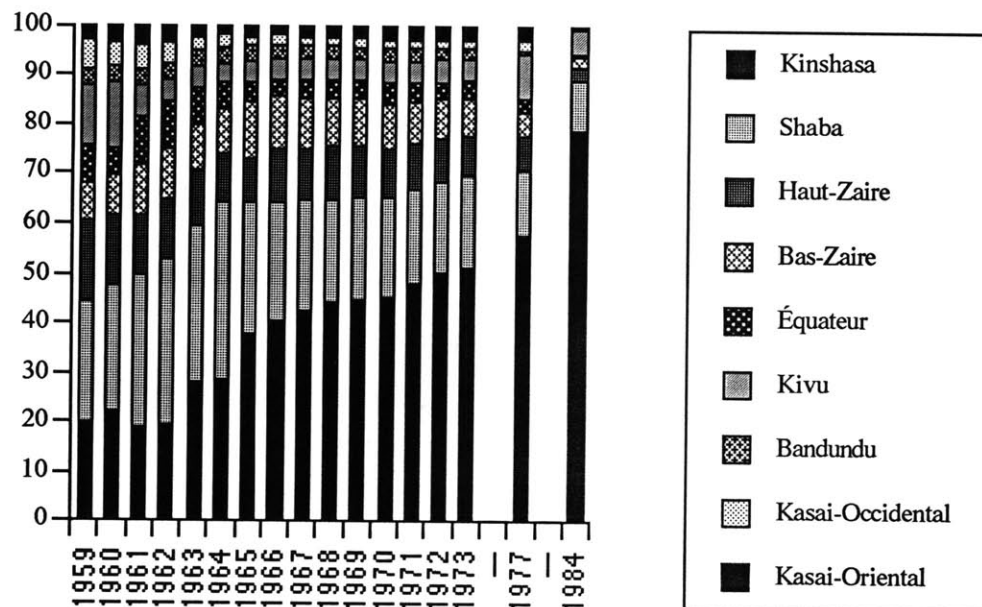


The above graph shows that the Belgians had to reckon with approximately as many vehicles before independence in 1960 as are left today, after several economic collapses.⁷ While truck use (the crucial element in road deterioration) appears to have declined, its impact has drastically increased. The first vehicles exceeding an eight ton total capacity were not imported into Zaïre until the early 1960s. By 1984, only 21% of trucks had a carrying capacity of less than 5 tons. 52% had a carrying capacity of eight tons or more.⁸ Furthermore, it is now extremely common load trucks well beyond their specified capacity limits. Road use is virtually unregulated and drivers are paid mostly by what they can transport above and beyond their instructed cargos. Larger trucks, when affordable, are increasingly favored, because they can handled deteriorated roads better.

Driving practices have become far more damaging partly because Zaïre's constituency for effective rural road maintenance has fallen drastically in size and power. The following graph shows how vehicles have been largely withdrawn from rural areas to the capital

Kinshasa, as firms and people pull out of a rural economy reduced to only a small fraction of its 1950's strength.⁹

Figure 2. Distribution of Vehicles by Region, 1959-1984



Although some colonial roads have disappeared, the rural road network is now greatly overbuilt in proportion to the traffic and maintenance resources of the shrunken rural economy. Average daily traffic is only 63 vehicles per day for national roads, and three vehicles per day or less for the regional network (see Table II.A in Annex II). There are no recent estimates for local interest roads, but these most likely fall well short of one vehicle per week on average.

Low traffic flows provide sparse support for road maintenance in a tropical environment where violent rains and prolific vegetation keep the fixed costs of road maintenance high. Furthermore, the economic shocks of the past thirty years and the rise and competition of smallholder agriculture have left comparatively few influential large companies capable of controlling cheap labor and of providing rural road maintenance cost-effectively. I very much doubt that the Belgians could succeed in maintaining roads effectively today. Indeed, the large number of

expatriate advisors working on the problem have had no cost-effective results.

The success of colonial road maintenance is largely explained by a different historical context, but it is also worth stressing how much concern and policy commitment was given to it by government. The Belgian crown recognized that its authority and resources in Congo drew directly from its massive investments in the expansion and maintenance of the colony's roads. Since the 1880's, mobility was consistently one of the Territorial Administration's highest priorities, and there is abundant empirical evidence to show that by the 1950's one could drive a Volkswagen Beetle through most of Zaïre. Driving 2750 Km across the country from Matadi (the western port) to Lubumbashi (the eastern copper capital) by car would take four days, whereas now it can be done only by heavy truck and takes at least 17 days.

A key strategy of the Belgian crown was to build and maintain colonial roads through large investment firms to which it granted land concessions or economic monopolies. The private sector developed local road networks or strategic links in close relation to their financial return. Since rural vehicles belonged overwhelmingly to large firms, and a single investment company would dominate road use in any given rural area, it was deemed obvious that large firms should be responsible for "their" roads, at no cost to the government.

For major roads used by multiple firms or small roads with no dominant private sector sponsor, the Administration assigned road maintenance responsibilities to its smallest administrative units, the "Chefferies" (now "Collectivités"). The chefferies passed on road maintenance implementation to villages chiefs who supervised foremen ("capitas") and manual laborers ("cantonniers"). At each level in the road maintenance hierarchy, the chief, capita or cantonnier could be severely punished or greatly rewarded according to the quality of his work during frequent inspections. While fear and forced labor dominated the early colonial experience, significant monetary incentives to labor mobilization became standard after World War II.

Despite the limitations of entirely manual technology, road maintenance remained excellent for three essential reasons: cantonniers were paid well, they were paid regularly, and they were not allowed to leave. The Administration strictly controlled agricultural markets and urban migration, so manual road maintenance was one of the few remunerative opportunities for most villagers. Given government employee status, steady salaries, and benefits, cantonnier work was popular.

The essential counterpart of the colonial administration's success in repairing roads was its emphasis on prevention. The colonial government was able to enforce stringent regulations against damaging road use. In particular, the Administration prohibited the import of road vehicles with over 2.5 ton axle-loads,¹⁰ used weighing stations to monitor overloading strictly, kept speed limits low, and patrolled rain barriers to interdict road use during or shortly after heavy rains (when the road foundation is the weakest). Virtually no natives could afford or were allowed to have cars, further limiting road damage.

After independence, roads began to deteriorate rapidly as rural administrative systems unravelled, several regions declared independence, and expatriate leadership fled. In particular, the most prosperous regions of Bandundu and Shaba suffered repeated civil and economic shocks. In Bandundu, colonial infrastructure was largely destroyed by the Mulelist Rebellion (1964), whereas in Shaba, repeated invasions in the 1960's and 1970's by the Gendarmes Katangais disrupted the supply of Zaïre's copper lifeline. Zaïreanization measures in 1972-73 produced a second downfall of the rural economy as expatriate-owned plantations and commercial enterprises were handed over to inexperienced nationals. Despite "retrocession" of many rural enterprises, the rural economy collapsed in scale, stability, and capacity to support rural road maintenance.

With heavy support from the World Bank, the government of Zaïre (GOZ) created a road maintenance parastatal in 1971 to replace the Ministry of Public Work's Roads Administration, considered highly inefficient with its 40,000 salaried cantonniers.

Office des Routes (OR) aimed at primarily mechanical road maintenance with in-house production units (called *unités de production* or UPs). Only new capital-intensive equipment could counter the impacts of heavier trucks, uncertain cantonnier salaries, and the liberalization of small-scale agriculture on the effectiveness of manual road maintenance. OR did not replenish its stock of aging colonial cantonniers, and their numbers and strength gradually declined. Many cantonniers who had been living in special cantonnier villages along uninhabited road links migrated away.

OR faced major management problems with its large number of force account (in-house) operators and machinery. Under World Bank prompting, OR turned over most national and regional road maintenance responsibilities to private sector contractors, whose politicized selection often encouraged poor or unimplemented maintenance. For local interest roads, cantonniers were selected and supervised by the collectivities, and controlled and paid by the nearest OR UP. As the UPs were often too distant or too busy with mechanized work for effective administration, maintenance of local interest roads was ceded entirely to the Governors (Regions) with the collectivities as implementing agents. The collectivities experienced great difficulties managing and motivating their cantonniers, as they lacked the resources, stability and authority of strong government to back them.

Faced with extreme road deterioration, most rural enterprises pulled out of remote areas, although some continued to maintain rural roads crucial to them on their own account. Religious missions in particular continued to play a key role in maintaining remote road links. Yet further rural economic shocks, such as the demonetization in 1980 which wiped out most of rural peoples' savings, withdrew from the rural private sector its ability to finance a major portion of the country's road maintenance needs. As rural economic conditions worsened in the 1980's, systematic self-maintenance of roads also continued to decline. While the feeder road network is mostly undocumented, many colonial roads are known to be lost.

From 1981 on, the national Agriculture and Rural Development Department became increasingly involved in the

maintenance of local interest roads. Funds were disbursed for Governors, and equipment was given to the collectivities to be distributed to their road workers. As the Agriculture and Rural Development Department lacked financial, logistic and technical capacity, significant activity did not begin for five years.

Following a division of the Agriculture and Rural Development Department in 1986, the Rural Development Department was given overall management of local interest roads, now known (and economically justified) as “agricultural feeder roads.” With World Bank assistance, the Department created the Service National des Routes de Desserte Agricole (SNRDA) in early 1987. SNRDA was structured from the beginning to contract out all maintenance work with contractors and suffered the same problems of political selection of contractors as OR. In a major effort at decentralization, SNRDA relinquished most of its authority over road link maintenance contract selection to regional government in 1989.

OR now has 8,000 employees, a large equipment fleet including about 550 civil work units and 800 trucks, 27 UPs, and headquarters in each of the country’s nine regions. Aside from donor funding, its resources depend almost entirely on an earmark of the national fuel tax, which was greatly reduced by high inflation in the 1980’s. Although earmarked government revenue has increased by making the fuels tax an *ad valorem* import tariff rather than a fixed retail tax, budgeted funding has been largely withheld from OR. Financial crisis since 1987 has forced the suspension of virtually all contracted work, and made meaningless all maintenance work programs.¹¹

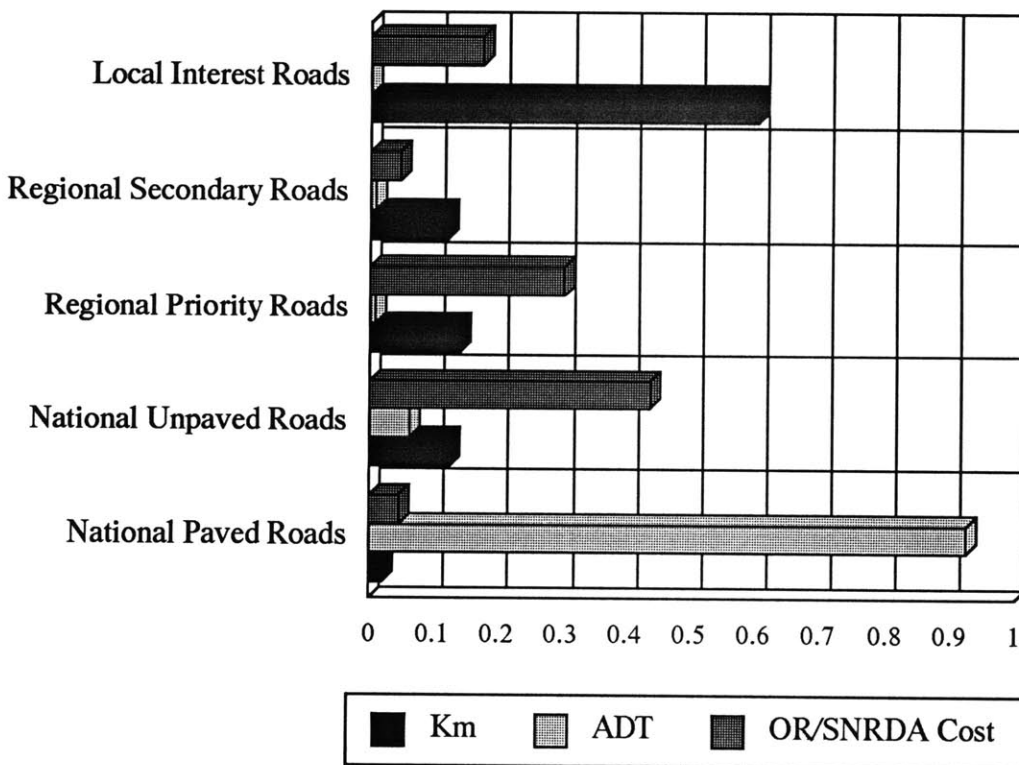
Table 2. 1989 OR and SNRDA Budgets Disbursed by GOZ

<u>Road Classification</u>	<u>Km</u>	<u>ADT</u>	<u>OR/SNRDA Cost</u>
National Paved Roads	2800	293	\$80,000
National Unpaved Roads	17900	19	\$742,000
Regional Priority Roads	20200	3	\$515,000
Regional Secondary Roads	17100	2	\$80,000
Local Interest Roads	87000	0.25	\$293,000

Without multi-million dollar infusions of donor support, there would have been virtually no maintenance implemented in the past three years at all. Funding actually received from the GOZ by OR and SNRDA has been extremely sparse — \$1.9 million for OR and \$292,500 for SNRDA in 1989. This has not even been enough to cover fixed costs, let alone perform maintenance. For example, OR debts to contractors and suppliers currently total \$15 million.¹²

Graphing the percent relationships in Table 2 highlights the confused relationships between length of road, level of traffic and national government expenditure. Much of the distortion stems from matching funds to donor commitments (not included in Figure 3), while donor projects currently favor the lowest volume roads. Zaire's paved roads, where maintenance would have a much higher return (as well as strategic interest), are literally turning to rubble waiting for new foreign projects to come on line.

Figure 3. Road Length, Traffic and GOZ Maintenance Expenditure



National Zaïrean road maintenance policy is not only financially but also strategically bankrupt. Zaïrean road maintenance has come to a virtual standstill, not only because of financial crisis, but also because all of the approaches tried in the past thirty years have failed to prove sustainable and cost-effective.

Current plans for the reform and relaunching of OR and SNRDA all focus on developing contractor work, although systematic dependence on private sector contracting had no place in colonial road maintenance success and has generally failed where applied since in Zaïre. Spurred by the World Bank, the Zaïrean government approved in December 1989 a plan to privatize much of OR. Personnel would be cut from 7500 to 5800 by March 1990 (I have no indication that this has taken place), and eventually to 2000. Equipment would be leased to private operators under contract who would then sell their services back to OR. The purpose of the plan is “a new management system whose objective is the elimination of most of the maintenance done by [OR’s] force account works and all its equipment management in favor of maintenance contracting.”¹³ Given that the general quality of most contractor work until now has ranged between disastrous and poor (as shown in the following Chapter), are such plans for drastic privatization reasonable or just an act of desperation?

Figure 4 on the following page shows the current institutional organization of rural road maintenance in Zaïre. For lack of space, the flowchart does not include the upper echelon of Zaïrean government administration, which consists of the all-powerful President Mobutu and his Executive Council. Mobutu wields great personal influence in the distribution of his country’s revenues and has fired several directors of OR in the past four years. GOZ underfunding of the national road maintenance administration is therefore partially a reflection of presidential disfavor to its administrators. Although it is hard to read Mobutu’s intentions, it is my impression that Mobutu has furthermore intentionally allowed OR’s financial crisis to worsen as a policy weapon for major reform.

Three essential points about the diagram of the current maintenance model should be noted at this point. The first is that

road user charges (primarily the fuel tax) pass from the road user to the oil companies and the national customs office all the way up to the highest levels of government. The benefits which trickle back down to the user are unsurprisingly small. The second point is that OR, SNRDA, and Territorial Administration have parallel but independent top-down hierarchies. Some consultative links between the hierarchies are only now beginning to develop. The third point is that road users have no say in either the implementation of OR force account (in-house) road rehabilitation and maintenance, or the selection and supervision of road contractors. These inefficiencies make up the core of the current system.

The contractor model now envisioned by foreign donors would decentralize OR and SNRDA at the regional level, and increase the influence of regional government on contractor selection and supervision. Foreign aid would be retargeted to the regional level, but would not have significant policy implications for subregional (zone and collectivité) government. Donors would continue to subsidize government road rehabilitation or maintenance, whether OR, SNRDA, or regional government manage the contracts.

Chapter 2 investigates the powerful institutional interests which predetermine the direction of road maintenance reform and considers why contractors in general will not provide cost-effective maintenance. I overview the road maintenance biases of government, farmers, merchants, missionaries and large engineering firms, and analyze the interests, experience and capabilities of actual contractors. I then show how these biases and constraints cause the breakdown of the current system. This overview provides the necessary preparation for the alternative model which I present in Chapter 3.

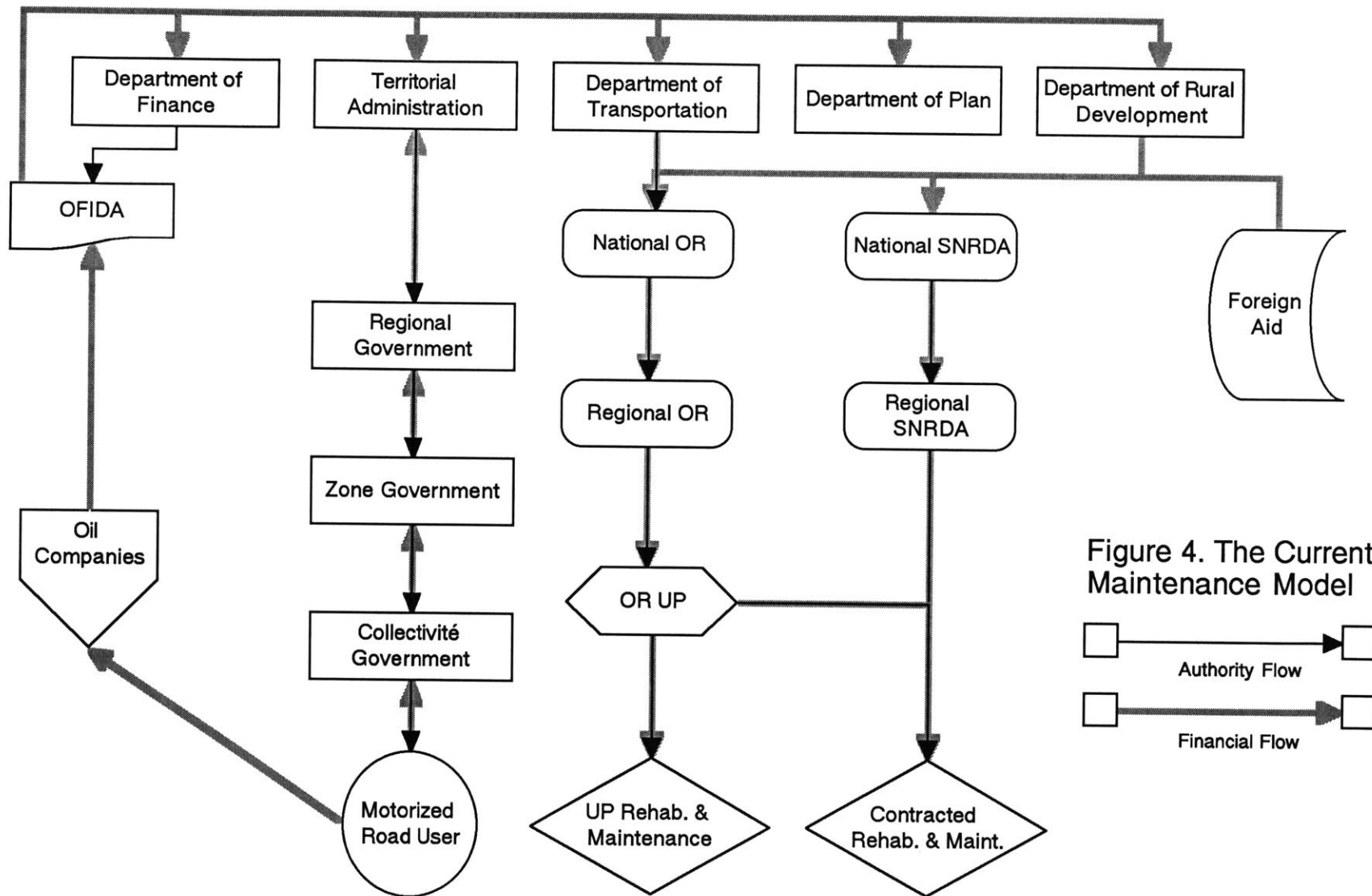


Figure 4. The Current Maintenance Model

CHAPTER 2, The Contracting System

Through the resources they channel, road maintenance contracts have enriched both effective and ineffective contractors. Road maintenance contractors, however, do not themselves provide a politically significant constituency advocating the development of the road maintenance contracting system. The political economy contracting depends less on the profit motive than on public and private concern for institutional empowerment and survival. For example, OR and SNRDA are critically dependent on the promotion of private sector contracting for their expansion and operating budgets. The Territorial Administration also has a major interest in gaining influence by developing its role in the contracting system. Not least, private sector institutions have a stake both as the primary road users and as contractors.

The transport sector is one of the main recipients of external aid in Zaïre. Since 1972, the foreign exchange costs of nearly all investments in roads, railways, ports and river transport have been financed through official development assistance (ODA), generally led or inspired by World Bank initiatives and policy. Through 1984, OR received more than \$350 million from donors, of which \$160 million financed the construction of roads, bridges and ferries while \$190 million supported maintenance and rehabilitation.¹⁴ Exterior financing of roads from the present to 1992 is estimated at approximately \$435 million. Large credits and grants are currently under development for national river and rail transport improvements, and the final total donor investment spanning two decades may easily approach two billion dollars.¹⁵

Virtually all new road maintenance donor initiatives focus on contracting maintenance, conscientiously integrated under World Bank inspiration and leadership. Given their dependence on foreign funding, is wholly unsurprising that Zaïrean government institutions concerned with road maintenance also think the same way. The

following paragraphs detail their particular perspectives on the contracting system, to be contrasted immediately following by the particular perspectives of private sector groups.

Government Interest

1. OR

An acute budget crisis impels OR to reduce its direct responsibilities, and externally financed privatization of maintenance is the obvious, externally mandated option. Foreign donors such as the World Bank and USAID are some of OR's few allies powerful enough to recover its fuel tax revenue base from the central government — or to underwrite OR's survival. Devastated by prolonged nonpayment of the tax and mistrusted for its inefficiency by the government, the OR is compelled to follow expatriate policies, even if these reforms recommend the partial dismantling of its in-house maintenance work and a major pruning of its work force.

OR is comfortable and experienced with private sector relations, but until now has had some flexibility to choose when and when not to engage in them. For road links where no competent contractors are available, or the private sector price demanded is thought unreasonable, OR would prefer to perform the maintenance itself.

OR has had some success in the past with a system of manual maintenance where cantonniers are provided by Chefs de Collectivités, but supervised and paid directly by local OR engineers. Some OR cadres say that OR provided better supervision and technical support than most contractors, since it passed frequently on the roads, had superior technical skills, and could provide mechanized assistance when necessary. Yet many also argue that the administrative costs, both financially and through its taxing of OR personnel, made continual maintenance unsustainable. Overall, there is a general consensus in OR that it should have the resources to

manage maintenance directly along road links where qualified contractors cannot be found.

2. SNRDA

With only two or three cadres in every region, SNRDA depends wholly on contractors to maintain its network of feeder roads. It also depends on regional government to propose contractors on the subregional (zone) level and them through a regional commission (RRC) led by the region's Governor. Most importantly, SNRDA relies on OR to perform direct supervision of SNRDA contractors through OR road engineers assigned to each of a region's zones.

Given the enormous size and relatively non-strategic nature of the feeder road network, SNRDA is comfortable with the policy of maintaining roads only where it can find competent contractors. This allows SNRDA a different type of flexibility from OR's: not the alternative of in-house maintenance, but a de facto mandate to leave many of its road links unmaintained.

Like OR, SNRDA is tempered in its enthusiasm for new contractors by the knowledge that current funds do not provide for adequate supervision. SNRDA is additionally vulnerable through its dependence on OR and Territorial resources. SNRDA is clearly counting on planned World Bank assistance for its effective expansion into new rural areas.

3. The Territorial Administration

Governors have many strategic, economic and political reasons to encourage road maintenance, and have often used regional discretionary funds to do so. Governors' interest in road maintenance has become particularly evident since the official decentralization of SNRDA contractor selection to the regional level in early 1989. Regional government does not believe that the national SNRDA was effective in selecting contractors, and has gained increased authority from SNRDA's yielding of decision-making.

Regional government is now anxious to expand private sector road maintenance, still using national and international funds, but disbursing them under regional control.

Zone government also favors an expansion of the contracting system, particularly if it has a say in proposing contractors. Zone government recognizes the economic impact of externally funded road maintenance contracts and is anxious that these be distributed in terms *it* deems equitable.

Since independence, significant levels of road maintenance have continued under the auspices of collectivité government. A major limitation of this public system is that it depends on “voluntary” work (*salongo*) and highly inefficient taxation of meager local resources. Considering local government’s long history of direct involvement, it is surprisingly soft spoken about delegating road maintenance to private individuals. An explanation is that many local government officials themselves apply to be contractors, either in their own name or in the name of their government group. Local government is therefore favorable to the expansion of the contracting system using individuals associated with it or somewhat under its control.

Zairean government support for the contracting system is practical (need for funding and influence) rather than philosophical (perception of logical institutional roles). Private sector support for the contracting system is also based on fragmented practical and personal interests rather than any systematic logic.

Private Sector Interest

The Zairean private sector has suffered immensely from the lack of road maintenance and resulting lost vehicles, markets and revenues. From a general point of view, the private sector has an enormous stake in demanding major, systematic road maintenance improvement.

The particular perspective of each individual private sector organization is more complex. Individual calls for private sector

road maintenance reflect considerable interplay of public and private interests.

Road transport is largely unregulated, and the number of private operators is increasing. Unlike rail, which is monopolized by the Société Nationale des Chemins de Fer Zaïrois (SNCZ), and river transport, two-thirds of which is operated by the Office National des Transports (ONATRA), there is no parastatal dominating road transportation. In 1985 Zaïre had about 700 firms with ten or more trucks each and an estimated 2,500 small operators with about one or two vehicles employing approximately 27,000 people.¹⁶

Competition is keenest around Matadi, the ocean port, and around Kinshasa, the capital 130 km away. In most of the country, road transport is tightly constrained by the shortage and the expense of fuel, as well as the quality of both paved and unpaved roads.

In such an unregulated, cost-sensitive market, road maintenance should improve the flow of information and goods, directly benefitting farmers by stimulating competition between buyers. Well maintained roads generate both higher farmgate prices and a more favorable exchange in manufactured goods (although their terms of trade have fallen drastically with the devaluation of the Zaïrean currency). Several farmers told me that they worked very hard to improve road access to *their* field, but not so much that truckers would be tempted to push further on in search of cheaper produce. Farmers on well maintained roads do not want more remote roads to be improved. They correctly fear that some of their competing merchants will drift away in search of lower prices.

In contrast to the agro-industry dominating rural road use in the colonial period, modern rural trade does not incorporate a systematic logic of self-interested road maintenance. River and road transport has declined in conjunction with the deterioration of the roads, so road users have largely been able to pass on higher operating costs to consumers. Road use patterns have shifted to the detriment of rural operators dependent on a single agricultural production area and in favor of urban traders with the flexibility to trade where they choose.

Most agricultural produce is collected for Zaïre's major urban areas by urban traders with few rural loyalties or commitments. Worsening terms of trade and cash flow have made new vehicles and spare parts increasingly unaffordable, so as existing vehicles age and break down (a process accelerated by deteriorating road conditions), rural organizations are left unmotorized, or to prolong the life of their surviving vehicles by retrenching them to Kinshasa or Lubumbashi. 77% of Zaïre's trucks are now based and in most cases operates entirely in the Kinshasa metropolitan area. Another 4% belongs to the national mining company, GECAMINES. This leaves only about 19% operating in the rest of the country (including the large Shaban city of Lubumbashi).¹⁷

My interviews suggest that organizations are continuing to disinvest in both Bandundu and Shaba rural areas, and that their logistical capacity for road maintenance will continue to decline. Furthermore, the decline of perennial crops (palm fruit and manioc) relative to seasonal crops (maize, cotton and coffee) has reduced traders' commitment to rural roads not only geographically but in time. Many rural roads now only see motor traffic for two or three weeks a year.

The current pattern of rapid trading forays into rural areas implies that trucks will collect produce only where they think the roads are best, and sometimes have an interest in leaving damaged roads behind them for their competitors. A merchant has considerable flexibility to choose where he will leave the OR-maintained primary road network to collect produce on agricultural feeder roads. Rural market areas with poorly maintained roads offer the highest margins, due to the isolation of the local population and their scarcity of buyers. Yet merchant operating costs and time delays increase with road roughness and distance. Most importantly, a merchant must factor in the greater likelihood of breaking down on poorly maintained roads, and if so, the greater difficulty of finding help. Because of the costs in vehicle replacement — a recent study shows the average age of Bandundu trucks to be thirteen¹⁸ — market strategy generally favors less deteriorated roads, although

not by as much as a long term concern for vehicle wear might recommend.

Merchants take advantage of their mobility to avoid heavily deteriorated roads. They rarely are under compulsion to pay for road maintenance themselves. Merchants would often rather not make the profitable roads they use more attractive to competitors. Unless awarded government contracts, most merchants will perform virtually no road maintenance short of emergency repairs by truck crews just to get through.

While it is very rare for rural organizations to refuse road improvements, many do find themselves in the paradoxical position of wanting to improve a road for themselves, but not for others. This was well explained to me by a powerful merchant in Kongolo (north Shaba) who habitually repairs bridges at his own expense, and then breaks them after his vehicles pass. Some of the demand for improved road maintenance retains a preference that the improvements do not induce new traffic, and thereby additional competition and road damage. A merchant with a comparative advantage in quality of vehicles and repair facilities may not wish that certain road links be improved, because increased accessibility would increase his competition more than it would reduce his operating costs.

Do rural organizations not driven by the profit motive show greater commitment to maintaining specific road links? Missions have a particularly long and illustrious history of providing road maintenance in Zaïre. Unfortunately, their reputation for effectiveness is receding in most areas as experienced missionaries have retired and financial pressures have increased.

I found most missions in Bandundu and Shaba currently to perform at their own expense a bare minimum of maintenance essential to keeping their supply lines open. The most capable missions seemed the most wary of taking on extensive additional road work, considering such responsibilities merely a practical necessity for which religious orders should not be logically responsible.

Like church groups, PVOs are particularly sensitive to irregular government contract payments. They greatly fear being accused by the local population of pocketing road maintenance money. Many consequently prefer funding a minimum, but regular level of maintenance themselves.

Large agribusinesses dominating road use in a specific area seem to have the best logic for maintaining the roads they use. These firms must depend on themselves to cover the vast networks they live on. Major agribusinesses often employ over a hundred cantonniers, to which they provide significant light mechanical assistance (such as transport to difficult crossings). I found that these few remaining large rural enterprises may spend up to fifteen percent of their local operating budget on road maintenance. Cantonniers are well supervised and paid. Like other permanent employees, the company provides them with medical care, school aid and pensions. Merchants and villagers benefit greatly from agribusiness road maintenance. Only directly competing companies might have difficulty using public roads predominantly financed and maintained by private agribusinesses.

Large engineering firms are the only group that I found which finances significant levels of mechanized rather than manual maintenance, and then generally only under contract. Mechanized maintenance is furthermore largely restricted to southern Shaba, where a few large engineering firms have lucrative contracts with GECAMINES. In a few cases, these firms express self-interest in road maintenance.

The most famous example is that of the Swanepoël engineering firm in Shaba, which was willing two years ago to resurface without charge the national Likasi to Kolwezi highway, a very costly procedure which would nevertheless save Swanepoël money through reduced vehicle operating costs. (OR Shaba was unable to provide the bitumen, however, since all purchases must be centralized in Kinshasa, and it cannot buy more conveniently from South Africa. The road must now be largely reconstructed.)

Swanepoël also provides an interesting case of a mechanized firm also opting for manual methods. With only manual workers and

two tractor-grader passes a year, Swanepoël spends ten times less per kilometer to maintain a public farm road it uses frequently than it spends to maintain contracted roads of nearly equal volume mechanically. This suggests that considerable savings might be made by changing the maintenance technology standards of some of the most expensive government contracts.

Contractor Interest

Current and potential contractors have two principal interests in the contracting system: economic benefit from improved road maintenance and financial gain from government contracts. They favor expansion of the contracting system both as consumers and as producers of private sector road maintenance. OR and SNRDA unpaved road contracts now average about \$150 per Km per year, for an average of over 80 Km. Given that the value of a *single* kilometer of contracted road maintenance is more than eight times rural annual per capita income, most contractors profit far more from the cash value of their contract than from the reduced operating cost of their vehicles which might be gained through contracted road maintenance.

One significant contractor advantage cannot easily be defined monetarily. A government road maintenance contract is always, if not a financial boost to the contractor, at least a subsidized opportunity to cultivate commercial and other links with the local population. If a powerful entrepreneur or politician wins a road maintenance contract, he is in a privileged position to develop the loyalties of the roadside population to future advantage. For example, a farmer dependent on a maintenance contracting merchant for his cantonnier salary is also more likely to sell his crops to the same organization. In a competitive environment, maintenance contracts, like any other infusion of outside resources, may weigh on the local balance of power.

I found only one out of the 180 contractors whom I interviewed last summer that kept a separate budget for road maintenance. My overall impression, buttressed by a few cases of

Careful cross-questioning, is that contractors in a narrow majority of cases spend approximately as much on road maintenance as they receive in government subsidy. A handful of large firms spend considerably more on their attributed road links than they receive from government subsidies, and close to half of contractors make a substantial financial profit from their contracts (this is an intuitive guess, I have no way to prove it). It can be assumed that many contractors, especially those whose contract exceeds their previous annual income, might be sorely tempted to cheat.

Most frequently, profit is generated when contractors fail (deliberately or not) to hire the requisite number of cantonniers. I also found frequent cases of cantonniers being hired but not paid (some contractors, like the Grand Chef Kabongo in Shaba, occasionally have the power to coerce their cantonniers to work without pay). Inadequate contractor supervision makes the control of such abuses extremely difficult. Neither OR or SNRDA has ever brought a manual maintenance contractor to court for breach of contract.

With either honest or dishonest motives in mind, most contractors qualify their support for expansion of the contracting system by insisting on better terms for themselves. Virtually all contractors argue that they can only be expected to perform adequately if government provides regular and adequate financing. These wishes contrast sharply with the government's current sporadic payments.

Contractor Capacity and Performance

It is unclear how much national government and donor financing has boosted the production of rural road maintenance from the minimal levels that private firms or local government might perform on their own. The above analysis suggests that both institutional and individual interests in the contracting system are essentially grounded in the perceived benefits of tapping into external funding, and in the increased influence that this funding

provides, rather than an economic calculation of of road maintenance economic benefits.

To hedge against high economic volatility, most Zaïrean private sector firms diversify heavily (agriculture, ranching, commerce, construction). Nonetheless, they record very little or no analysis on the merits of specific investments such as road maintenance. I found organizations to know very little about how much they actually invest in road maintenance, even when they fund their road maintenance entirely by themselves. In general, large companies mix in road maintenance with general administrative costs.

Small traders do not register such costs at all, as they pay for road maintenance only on an ad hoc basis, when faced with impassable mud or other unexpected obstacles (some villagers deliberately encourage these “hot spots” so that they can be paid for their help). The extent of informal maintenance is not known, although by one account smugglers pay well and regularly for road maintenance in border and illegal mining areas.¹⁹

A consequence of this lack of hard data is my difficulty in estimating how much road maintenance the private sector actually supplies. Much private sector road maintenance is funded independently by firms, and not registered with the government. Even for contracted road links, the actual supply and quality of maintenance is poorly monitored and remains largely unknown.

The USAID-OR Road Maintenance Survey which I compiled last summer does offer some useful data on the experience, geography, characteristics, activities, and equipment of 210 most promising of the 280 organizations in the Bandundu and Shaba regions completing questionnaires on their suitability for road maintenance contracts. Annex I includes a description of the survey, a discussion of its limitations, and a comprehensive listing of its data. The survey underscores how economically weak and underequipped both past and potential contractors are. It also suggests that most contractors do not have a vital interest in effective road maintenance, as they are not geographically or economically dependent on the roads that they maintain.

One third of the organizations responding to the survey have some road maintenance experience. About one-sixth are or once were contractors. Including participation in large road construction and rehabilitation projects, the road maintenance of 56% of Bandundu and 74% of Shaba experienced organizations is government sponsored.

A major consequence of this central funding is that contractors often do not live in the zone where they presumably work. 17% of experienced responding organizations in Bandundu and 14% in Shaba do not have a representation in the area where they request road links. This suggests that a significant minority of past or current contractors also executed their contracts from a distance. 66% of Bandundu organizations are represented in Kinshasa, which in most of these cases is the senior executive's primary place of residence and work. Approximately the same concentration holds true for Lubumbashi, the regional capital of Shaba. A majority of contractors are thus not permanently in their zone of action, but shuttle back and forth between their zone of interest and the metropolis (and in many proven cases, do not personally visit their allotted roads all).

Uneven access to survey questionnaires explains much of disparity in zonal response levels. A few zones, however, appear particularly promising in terms of interest and experience. Bulungu (36%) and Idiofa (23%) in Bandundu, along with Kongolo (19%) in Shaba, are in fact dynamic agricultural zones with comparatively high feeder road transport activity (one to five vehicles per day). For both Bandundu and Shaba, missions and private voluntary organizations represent only 10% of road maintenance experience, perhaps because many remote organizations did not hear about the survey.

Experienced organizations requested a median 210 Km. in Bandundu, and a median 165 Km. in Shaba. While the lower Shaba request may seem as more realistic, cantonnier work is inherently more difficult in Shaba due to sparser population. Shaba's median request may be considered just as high if local conditions are factored in. To an extent, smaller requests are a reflection of a

responding organization's seriousness in understanding the difficulties in maintaining roads. As mentioned earlier, organizations greatly inflate their requests relative to the number of kilometers which they could realistically maintain.

Government organizations make up 5% of survey responses in both regions, and private voluntary organizations 13%. More public interest organizations would undoubtedly have responded if the language of the survey were more explicitly inclusive of local government and PVOs. By far the largest response (79% in Bandundu and 62% in Shaba) was from organizations involved to some extent in agriculture. Most are agricultural buyers and sellers on their own accounts; only 33% of organizations, both in Bandundu and in Shaba, consider transport for hire one of their activities.

Large agribusinesses represent 14% of Bandundu's and 5% of Shaba's experienced organizations. While the number of kilometers requested by these firms is large, most requests are from firms primarily active in commerce (43%). Construction companies cover 16% of Bandundu and a surprising 29% of Shaba experienced organization requests. 9% of Bandundu firms and 21% of Shaba firms have performed mechanized road construction. Clearly, the major engineering houses dominate this list. A surprisingly large percentage of voluntary organizations in both Bandundu and Shaba (33%) have experience in bridge construction. Many organizations also expressed a priority interest in rehabilitating water crossings rather than an interest in general road maintenance. Water crossing rehabilitation and other "special works" can generate government contracts far more lucrative than the fixed rates for simple road maintenance per kilometer.

31% of Bandundu and 24% of Shaba respondents are self-employed. 52% and 60% respectively consider themselves "enterprises," which may range from meaning international firms to remaining essentially self-employed. My interviews suggest that most road maintenance contracts have essentially been managed by individuals as individuals.

67% of the organizations list themselves as having annual contracts between 1,000,000 and 20,000,000 zaïres (\$2,500 and

\$50,000). Only 19% in Bandundu and 5% in Shaba consider themselves “small” organizations with contracts of less than 1,000,000 zaires a year, and only 15% of Bandundu and 26% of Shaba firms list contracts of over 20,000,000 zaires a year. The greatest road maintenance experience lies with medium size firms, averaging 30 employees in Bandundu and 68 in Shaba.

28% of private firms are not affiliated with the national social security system (INSS), although affiliation is technically required for all firms with employees. Average seniority of organization directors is 10 years, suggesting a high preponderance of family firms.

Perhaps the most striking result of my analysis is that only 38% of Bandundu and 52% of Shaba experienced organizations have one or more trucks. Only 72% in Bandundu and 55% in Shaba have a jeep, pickup, motorcycle or car for road maintenance supervision (cars are actually no longer practical on most unpaved rural roads). Lack of vehicles despite road maintenance experience suggests two things: considerable levels of road maintenance have been done only by renting motorized vehicles, and firms in general have fewer vehicles today than they did five years ago, when more road maintenance contracts were undertaken.

Performance and Constraints of the Contracting System

The implementation of the current road maintenance contracting system under either OR or SNRDA is far from a simple, predictable process. Information must pass through several cycles of local, regional, and national hierarchy. In a country as vast as Zaire, with limited transportation and communications, the informational requirements of the current system are daunting. Few contractors understand in any detail what happens to their application once they petition for road links.

The complexity of the system’s decision-making is grounded in regulatory checks by hierarchical superiors. Unfortunately, information moves so slowly that planned checks and balances do not engage in time to be effective. While donors have been most critical

of clearly overcentralized planning at the top of the system (in concordance with their vantage point), the critical breakdown has been in organization in the field, as underscored by the following overview.

1. Programming

In principle, OR feels that it is most cost effective for all of its strategic network to be maintained, as neglect of basic maintenance dramatically raises the cost of future rehabilitation. Therefore, OR has written into its work plan the intention to maintain most of its roads. Unfortunately, OR has never had the resources to meet this goal. The Office has consequently been caught in a web of limited, expensive road rehabilitation.

OR budgets are approved by President Mobutu's Executive Counsel, but actual released funds are generally far lower than the approved allocations. OR's recent financial crisis has been prolonged and profound, and work plans have become superfluous as earmarked funds fail to arrive. In many instances, OR is still waiting to fulfill its programming of three years ago, as proves its ancient list of contractors.

SNRDA's work program is no longer generated on the national level, but it is still determined through politics. Prioritization decisions are concluded in the Regional Road Commission, led by OR and SNRDA and including the Governor and local representatives of the national business association (ANEZA). Rural road link maintenance appears to be decided more in the interest of linking the government's administrative centers than on strictly economic grounds (however, political and economic objectives may frequently match). Although SNRDA must sign road work specifications, the Governor, as chair of the Commission, generally has the final say.

Specification of a contractor's program is often inadequate. Officially, OR road engineers must detail the state of attributed road links before a contract begins. This record is essential to judge a contractor's progress correctly. Yet such supervision is impossible.

Out of the country's 144 zones, only 84 have zone road engineers. 60% of Bandundu and 50% of Shaba zones have engineers, of which only 13% and 18% respectively have engineers with functioning vehicles.

2. Selection of Contractors

The selection of contractors is inherently political, as there are no firm standards for their selection. In the current contracting system's origins, Office des Routes intended to offer some legislators a stake in building OR's budget and constituency through road maintenance contracts. Hence, the first contractors were mostly Commissaires du Peuple (who vote in the national legislative council) and other highly placed politicians. This strategy to build OR's political support was a disastrous failure, as the absence of results in the field cost OR much of its existing support from the Conseil Executif, where the real power lies.

For SNRDA, life also began with the obligation to dispense from Kinshasa hundreds of contracts for road links it had no means to investigate. The weak organization was overwhelmed in the process, and early contractor selections were close to totally ineffective. In the past year, selection has been decentralized from the national to the regional level. The system currently operates as follows:

The Regional Road Commission (RRC) draws up its recommendations for priority road maintenance. Upon approval, the list is distributed to the zone level, where the Commissaire de Zone, ANEZA (national business organization) representative, OR Zone road engineer and other interested parties investigate the road links and propose potential contractors. Local government is invited by the zone leaders to comment. Upon agreement of amendments, ultimately decided by the Zone Commissioner, the priority road list with proposed contractors is sent back to the RRC. Individuals who felt circumvented by the zone level decision process can petition directly to the RRC. Upon reception of all the zones'

recommendations, the Regional Commission, led by the Governor, redrafts the list.

The following principles of contractor selection seem to be agreed upon by virtually all officials we interviewed: contractors should have a strong local interest, local representation, and at least one small vehicle capable of road work supervision. Also, contractors should not be given more kilometers than they can adequately handle (about 100 Km per supervision vehicle). Finally, contractors with a good existing track record with OR and SNRDA should be preferred. Contractors with a bad track record should be excluded.

Unfortunately, many poor judgments are still made, even with the best intentions. SNRDA simply does not have the personnel and vehicles to identify potential alternative contractors on location. I found several contracts in Bandundu and Shaba which had been given to “untouchable” politicians. Most of these distant individuals were collecting their payments without ever personally inspecting their work. We also found that contracts for special works (bridges and culverts) were often given to organizations with marginal resources and no experience. Finally, we found that the RRCs are still approving contractors which were not first proposed on the zone level. In some cases, these contractors are not even known by the zone. Such preemption of the zone’s prerogative to approve contractors is extremely discouraging to zone leaders.

3. The Road Maintenance Contract

The standard OR and SNRDA contracts have numerous weaknesses. First of all, the technical French is barely understandable to most contractors. In signing the contract, most contractors have little idea of what they have committed themselves to. They are much more sensitive to the historical lesson of what they think a contractor is expected to do -- or what a contractor can get away with.

OR and SNRDA officials consider standardized contracts to be administratively convenient. In particular, fixed rates greatly reduce the complexities of negotiation with contractors. Most OR and

SNRDA officials do not think that contracts can be made more flexible in the near future without sharply increasing chaos and the potential for corruption. Yet all recognize major problems with standardization.

Inflexibility works to the disadvantage of areas where roads are particularly hard to maintain. This is one explanation of why, for example, there are so few contractors in heavily forested Maïndombe, the northern sub-region of Bandundu. In many areas with low population density or high traffic rates (more than five vehicles a day), the case for some mechanization strengthens. Yet there is currently no flexibility to include different rates, mechanized, or semi-mechanized options into standard OR and SNRDA road maintenance contracts.

Fixed rates often preclude contractor interest in areas with manual labor costs significantly above the mean. While contractors in poor areas are sometimes overpaid, contractors in rich areas often cannot find cantonniers at the contract rate. Many contractors in eastern Bandundu and northern Shaba expressed satisfaction with SNRDA's new cantonnier rate of twelve dollars a month; in fact, they probably could continue to hire adequate cantonniers for less than the twelve dollar rate. Contractors in western Bandundu and southern Shaba, however, argue persuasively that they cannot find sufficient cantonniers at current rates.

4. Payment Levels and Regularity

Cantonnier rates under government road maintenance contract are low compared to the privately financed road maintenance of some large firms. Yet the major complaint about government funding of contracts is not over its level, but its regularity. Contractors have been often compelled to withhold payment to their cantonniers, as they themselves have not been paid by government.

Many organizations have dropped out of the contracting system, or never dared to enter it, for lack of confidence in government payment. I found several PVOs, along with a few commercial firms, who insisted that they would not renew

government contracts until regular government payment could be guaranteed.

Contractors complained to me that OR and SNRDA have often been misleading, in that they do not warn when central government allocations are delayed. Lines of communication are so thin that, even when warnings do come, it is too late to sustain a relationship of confidence.

Not only have OR and SNRDA delayed in notifying contractors of suspended payments, but contractors have done the same to their cantonniers. Some cantonniers have worked for months before knowing that they would never be paid. Not surprisingly, many such often highly capable and devoted cantonniers now vow that they will never maintain a road again.

5. Managing the Contractor: Monitoring and Training

I found the assistant SNRDA regional coordinator in Bandundu to be constantly on the move, visiting as many contractors as he could. Such valiant road work makes a significant difference, but it cannot replace regular local supervision. Lack of motorized road engineers has made a program of regular contractor supervision impossible. Many contractors rarely see an OR or SNRDA official after their contract is signed. Some mobile OR zone engineers try to cover neighboring zones, but the sheer number of kilometers to inspect makes adequate coverage impossible (particularly if the roads remain unmaintained). Also, the first priority of most mobile road engineers is to preserve their extremely valuable vehicles.

OR engineers have been asked by both SNRDA and regional government to supervise contractors themselves. In some cases, zone road engineers have indeed been able to contribute significantly to contractor effectiveness. On the whole, however, they have limited capacity and interest in supervising contractors regularly. Some zone commissioners in fact depend on rare OR zone engineer vehicles for their own circulation needs.

Many contractors themselves request government supervision. Even for contractors performing poorly, such calls are usually not contrary to their interests. Contractors officially cannot be paid until an OR engineer inspects their work. This rule is being increasingly enforced. Also, some contractors for special works may be wholly dependent on OR expertise for construction or repair to advance. In such cases, supervision is a direct prerequisite to payment.

Occasions have been noted of OR engineers writing unrealistically positive contractor reports, presumably not without returned advantages. Such cases are sure to increase as the contracting system is expanded.

An increase in the number and value of road maintenance and rehabilitation contracts with private sector enterprises would seriously strain the inspection capability of the two primary road organizations [OR and SNRDA]. Concern has been evidenced over the possible fragility of inspectors faced with the prospect of signing off on contractor operations that could easily exceed 5 - 10 million zaïre per month (compared to the average monthly salary for a Zone Engineer of approximately 60,000 Zaïre) [\$100].²⁰

Contractor reports now have to be countersigned for verification by the zone's commissioner. While this control is considered necessary, it is not clear that commissioners have the time or inclination for adequate verification. Also, obtaining the extra signature generates additional delays to contractor payment, especially if the zone commissioner tries himself to inspect the site. Rural networks are simply too extensive given the limited mobility of government officials for adequate road maintenance supervision.

There is some hope that contractor training may significantly improve the effectiveness of their work, but I believe such an expectation to be unfounded. Many contractors expressed interest in some technical training at the zone level, for themselves and for their capitas. This request was particularly strong with potential contractors, who thought that training might improve their chances of winning new contracts against experienced contractors. I consider it doubtful that inexperience, rather than lack of motivation for good performance, is a significant cause for poor road work.

The Need for an Alternative Approach

This Chapter has shown that the contracting system suffers from three fundamental flaws: a) its support by the Zaïrean public and private sectors is based far more on external financial opportunities and needs than on a belief that the the system can work; b) what there is left of the rural private sector does not have the resources or in some cases even the self-interest to maintain roads as contractors to the levels for which government pays; c) the contracting system as currently conceived is virtually impossible to implement and to manage effectively.

Support for road maintenance contracting ultimately stems from the World Bank's perception that there is extensive evidence that force account maintenance has largely failed, whereas the limited Zaïrean experience in contracting provides room for more future improvement. Yet force account and contracted maintenance need not be considered the only alternatives for Zaïre. Chapter 3 presents a basic rethinking of the premises and methods of rural road maintenance, adjusted to reasonable expectations under current Zaïrean conditions. While my solution is radical, I believe that the model which I propose is a sustainable alternative to the current contracting approach, and brings into line the interests and costs of rural road maintenance while providing for the long term institutional and economic development of Zaïre.

CHAPTER 3. The Local Model

Any model for managing rural road maintenance in Zaïre must aim at economic, financial and institutional viability. I begin with two basic questions: who pays for road maintenance and who benefits from it? The current disequilibrium between the two answers largely explains the ruin of current maintenance efforts; addressing the disequilibrium provides the key to a sustainable solution.

Calculating Costs and Benefits

According to the 1990 USAID draft Transport Sector Background Paper for Zaïre, "The cost of the improvement of infrastructure is radically out of proportion to what the farmer-transporter-consumer chain can pay in return for reduced vehicle operating costs."²¹ Most Zaïrean roads are so degraded that they will require expensive rehabilitation before maintenance has any favorable effect on rural traffic volumes and economic growth. Low cost manual road maintenance financeable through existing fuel and transport taxes could be effective for roads already in excellent condition. Few Zaïrean roads, however, are in presently good enough condition for this to be the case. Low cost contracted manual labor, based on low cantonnier salaries and low contractor profit margins, cannot be expected to turn the vast majority of roads requiring major rehabilitation into roads merely requiring punctual maintenance.

Major road rehabilitation therefore appears as an essential prerequisite to effective contractor manual maintenance. Yet the case against major road rehabilitation projects is strong. Even light, low technology machinery for road rehabilitation (of which there is comparatively little) disintegrates at a phenomenal rate in Zaïre. OR has over \$100 million of mechanized equipment, of which less than

half is in working order. The foreign exchange costs of fuel and spare parts (when available) and prohibitively expensive foreign technical assistance, are decisive arguments against existing donor efforts at road rehabilitation.

In an annex to the 1990 World Bank Transport Reform Program for Zaïre, transport economist Erol Haker calculates the economic rate of return of Zaïrean road rehabilitation, based on a recent survey of road costs and benefits.²² He estimates that Zaïrean road rehabilitation has a negative or less than 10% economic rate of return (ERR), since average daily traffic on most Zaïrean roads is extremely low. Office des Routes traffic counts estimate average daily traffic of less than 64 vehicles per day on national roads, less than four vehicles per day on regional priority roads, and less than two vehicles per day on regional secondary roads (see Annex II). Recent World Bank and USAID road rehabilitation projects have had economic rates of return even worse than Haker's low ranges, as rehabilitation has not generated 3.5% traffic growth per year as assumed in Haker's calculations.

Table 3. ERR of Rehabilitation Work to Gravel Road Standard

Average Daily Traffic	ERR of Rehab. From Bad to Good	Standards from Average to Good	Standards from Bad to Average
20 & under	less than -10%	less than -10%	less than -10%
21 to 50	-10% to 10%	less than -10%	less than -10%
51 to 150	25-40%	-10% to 10%	over 40%
150 & over	over 40%	25-40%	over 40%

Table 4. ERR of Rehabilitation Work to Asphalt Road Standard

Average Daily Traffic	ERR of Rehab. From Bad to Good	Standards from Average to Good	Standards from Bad to Average
0 to 150	-10% to 10%	-10% to 10%	less than -10%
150 to 350	25-40%	less than -10%	less than -10%
350 & over	25-40%	25-40%	over 40%

For the above ERR estimates, Haker uses actual recent costs of \$30,000 to \$50,000/Km for rehabilitation to gravel road standards, and of \$90,000 to \$150,000/Km for rehabilitation to asphalt road standards. Calculated economic benefits include induced development as well a vehicle operating cost and time saved.

A detailed computation of vehicles operating costs using the HDM-III model (Callaghan, 1990) confirms that user cost savings through road rehabilitation are well below established costs for the rehabilitation itself. With the economic crisis of the entire country deepening, significant induced development benefits to road rehabilitation are a difficult assumption. If the beneficiaries of road transport had to pay the full cost of rehabilitation, they clearly could not and would not. But there is a vast asymmetry of road rehabilitation and maintenance costs and benefits.

The most important factor skewing rehabilitation investment decisions is the weight of foreign aid. Donor commitments to Office des Routes represent \$245 million out of OR's conservatively estimated projected budget of \$451 million for 1990-1992.²³ External assistance now finances through OR more than half of Zaïre's non-urban road rehabilitation and maintenance. Donor aid for SNRDA is even more overwhelming, with \$17.9 million out of a \$20.8 million project being granted by foreign donors for agricultural feeder road maintenance.

Such dependency on official external assistance is not only economically unjustifiable but also absurdly unsustainable. While rehabilitation is often viewed as a one-time activity, Zaïre could not possibly meet even its most serious rehabilitation needs in the next two years. Indeed, a World Bank "Second Transport Sector Rehabilitation Project" with a foreign exchange component of \$378 million is expected to come on line by 1992. It is clear that dependence on foreign aid and loans will continue to increase, against all sound principles that development aid should aim towards its own graceful and successful exit.

The disjunction between road costs and benefits is reflected not only in massive and unsustainable foreign subsidies and debts, but

between Zaïreans in their contribution to road maintenance costs. In addition to the problem of funding performance, there are great inefficiencies in funding allocation. Urban road users and light vehicles heavily subsidize rural road users and heavy trucks. The fuel tax represents by far the largest source of Zaïrean proceeds for road rehabilitation and maintenance, yet fuel consumption is overwhelmingly urban. Gasoline taxes of 45% and diesel taxes of 45% reverse the accepted logic that large vehicles (generally burning diesel) cause far more deterioration than small vehicles (generally burning gasoline).

Although a small level of urban car to rural truck cross-subsidy might be considered progressive, Zaïrean imbalances between costs and benefits are far too significant to be justified in terms of policy. The problem of cross-subsidies is well summarized in the World Bank's 1986 Transport Sector Memorandum for Zaïre:

If the market is to generate the correct volume of transport services, allocated among the various transport modes according to their comparative advantages, road users should bear the full cost of wear and tear for which they are responsible. If they do not do so, the collectivity in effect subsidizes road transport, and goods that would more efficiently be moved by other modes of transport, principally the railway, or that would be produced closer to consumers, are moved by truck. There are good indications today in Zaïre that road users, mainly truckers, do not pay for the real cost of using the infrastructure. Although the effects of this distortion must be weighed against those of other distortions affecting transport enterprises, it should still be a priority for government to reduce it.²⁴

The levels of distortion are then estimated as the following:

... (a) on the whole, road users pay only about 80% of the cost of road use; (b) while passenger cars and light vehicles pay about 2.5 times the cost of road use, trucks pay only about 50%; and (c) vehicles travelling the inter-urban network pay only about 35% of the cost of road use, while users of the urban network pay about 3 times the cost. Given the lack of a satisfactory statistical base, the above figures give only an order of magnitude. They are, however, evidence of a serious problem.²⁵

Although urban fuel taxes should remain high in order to function as a congestion tax, the receipts should go to providing for Kinshasa's gigantic road rehabilitation needs, rather than to sparsely

used rural roads. Trucks in particular should be made conscious of the costs of their road deterioration to others, and be required to pay for these costs themselves. If the market is still profitable, and slower river and rail alternatives are not reasonable options, rural road users will be able to pass on most of their increased cost to consumers.

Despite higher costs on trucked rural goods, a fairer urban—rural and car—truck allocation of maintenance funding would on the whole benefit consumers. Most consumers of motorized road transport goods are urban, and they would gain from improved inter-urban road maintenance and lower costs for urban goods more than they would from improved maintenance on far less intensively used rural networks.

Creating the opportunity for realistic decision making between correctly costed transportation alternatives cannot be optimized through the careful balancing of taxes and subsidies in the context of Zaïre. National government administration is far too disorganized and unevenly implemented for rural road users to perceive accurately how taxes and subsidies might cancel each other out at the national level. For rural road users to even begin to make constructive decisions according to real costs and benefits, both the real costs and real benefits of their transport decisions and behaviors must be made clearly visible to them. This requires that road use be simply costed at the local level.

The Local Model

My approach takes the responsibility for costing road maintenance away from national government and reassigns it directly to local road users. The role of national government reverts from one of implementing road maintenance in the name of the public interest to one of providing an encouraging policy environment for self-initiated rural road maintenance conceived through individual interest. The key propositions for making the local model work are summarized below. They require that national government not

merely disengage itself from rural road maintenance implementation, but that it institute radical policy changes in support of local efforts.

1. Local Model Strategies

The local model is based on the implementation of the following strategies:

- a) Foreign donors would pull out of subsidizing rural road rehabilitation and maintenance implementation, except perhaps as part of an effort to keep open the multi-modal Voie Nationale, where most traffic and transport value-added is concentrated.²⁶ Aside from the Voie Nationale, foreign aid would largely concentrate on policy research and the development of river, rail and non-motorized road transportation.
- b) Special credits aimed at rural trucking would have little impact on the rural economy so long as most vehicle owners choose to concentrate their vehicle use in the cities because of the poor condition of rural roads. The GOZ would therefore not develop any special programs favoring cheap credit for vehicles and spare parts. It would, however, pursue general efforts to revive the Zairean banking industry and begin research into non-motorized transportation and .
- c) Receipts from the fuel tax would be earmarked to regional government according to approximate fuel consumption. Most of the tax would go to urban transport infrastructure renewal, while less than half of one percent would go to agricultural feeder roads.
- d) To keep further deterioration of unrehabilitated roads at a minimum, the import of new or used trucks designed for more than 2.5 ton axle loads would be banned (this is the axle load

limit largely responsible for the success of colonial road maintenance; research might suggest an even lower limit because of current highly deteriorated conditions and more destructive driver behavior). Outside of self-maintained networks, oversize vehicles would, where implemented, pay tolls even higher than the estimated cost of their road deterioration.

- e) OR and SNRDA national headquarters would be stripped down to mainly research, policy analysis, technical assistance and monitoring organizations. They would compile and distribute a full list of vehicle types used in Zaïre and their recommended maximum axle loads.
- f) Zone level government would have ultimate administrative responsibility for monitoring road maintenance within its circumscription, rather than OR, SNRDA, or another national or regional authority. Zone government would receive no national or regional subsidies for any of its roads. In compliance with standards developed by regional government, zone government could set tolls at the entrance and the exit of their Collectivité and at bridges and ferries.
- g) Collectivité level authorities would be mandated to enforce rules against overloading and speeding and to set up rain barriers according to the OR and SNRDA guidelines. Collectivités would also levy fines according to regionally established tariffs, but would not levy any tolls or taxes.
- h) Vehicle owners within the zone, whether government, private or voluntary organizations, would negotiate at the collectivité level on how to develop road maintenance efforts unsubsidized by government. Organizations using the roads the most would be expected to take the greatest responsibility for maintenance. Local representatives of the national business association, ANEZA, who generally represent the larger firms which

dominate locally-based road use, would be expected to take the lead along with Collectivité government in bringing together organization heads for negotiation.

- i) Zone government would try to coordinate the Collectivité plans. Failure to agree on a road maintenance plan or in its implementation would simply mean that the Collectivité goes without maintenance — which would encourage relocation of motorized road transport to another zone, or its abandonment. With time, most zones would develop an institutional framework capable of providing voluntary maintenance, although at minimal levels.
- j) All ferries, which require personnel and expensive upkeep, would be tolled by zone government. Additional cost of road deterioration by transiting outsiders might be born in some zones by a toll at the entrance and the exit of the zone. This toll would be set by zone government, approved by regional government, and levied equally for all vehicles according to axle-weight. Many zones might decide not to establish tolls at some or even all roads crossing their jurisdiction because of the cost and unreliability of collection. The local model does not require rural road maintenance spending by Zone government, so the absence of tolls is more a problem of free-riding by outsiders rather than a problem of inadequate resource collection.
- k) There would be no tolls or taxes on non-motorized rural road transport (animal, bicycle, cart) unless a new technology develops which significantly deteriorates roads.
- l) Office des Routes equipment would be progressively sold off at the regional level to the highest bidder and with sale contract clause that buyers use the equipment for road maintenance in Zaïre. Most of the proceeds of the sale would be used to pay OR

debts to contractors and suppliers, with the rest reverting to regional government.

- m) OR facilities and employees would be turned over to regional government, to keep on or dismiss as regional government decides. A small group of the most qualified OR and SNRDA officials would most likely be maintained to assist in developing regional road maintenance policy. Regional government could also choose to make OR and SNRDA engineers available to zone government and to private organizations at marginal cost. This might be particularly useful for maintenance of bridges and ferries.
- n) Foreign and national subsidies to imported food would be eliminated, so that domestic agricultural products might remain competitive despite the lifting of rural transport subsidies.

The combined effect of these strategies is that government organized road rehabilitation would virtually cease in the foreseeable future. Maintenance would be done almost entirely by hand, at levels barely adequate enough to get vehicles through in the best of seasons. At the same time, road use behavior would become much less damaging, both through more careful driver behavior and increased reliance on transport other than motor vehicles.

How could such an extreme approach be expected to work? The best answer is perhaps to rephrase the question: "How could a less extreme approach be expected to work?" The key to my local model is that it reverses the mentality perpetuated since independence that rural roads are the national government's property and responsibility. This mentality has caused road use behavior that is far more damaging than it should be. Only road user accountability for both the benefits and the costs of their actions at the local level can provide a direct incentive for effective road maintenance. Damaging road use and maintenance effectiveness must become local issues if their real costs and benefits are to be determined and reasoned out at a level where they can realistically be optimized.

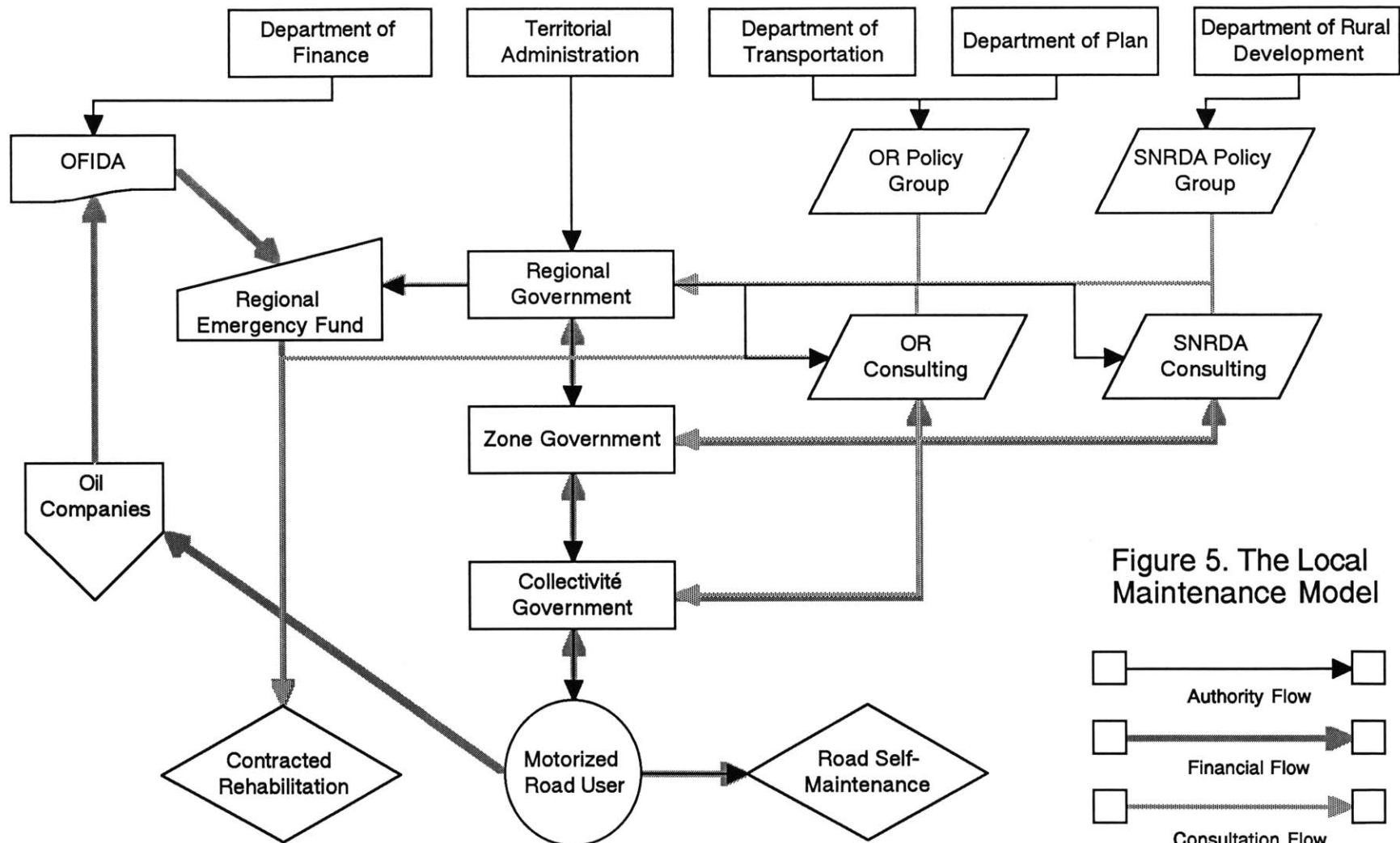


Figure 5. The Local Maintenance Model

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2. Institutional Structures

The institutional organization of the local model for Zaïre is found in Figure 5. My aim is not to detail precisely how the local model would be implemented in Zaïre. This can only be decided by the Zaïreans themselves after considerable institutional negotiation. Figure 5 does reflect, however, some broad institutional conceptions.

The most radical institutional change is of course that roads would be directly self-maintained by motorized road users, rather than maintained through government agencies or contractors. Non-motorized road use would be encouraged not only through government policy, but also through the tax-free status of non-motorized road use at all levels of government.

OFIDA would be required to transfer fuel tax revenue directly to the regional level rather than to Kinshasa. Although the allocation for rural roads would be small relative to the allocation for urban roads, I have left open the option for some rural road rehabilitation to be privately contracted at the regional level. In general such rehabilitation would not be cost effective, yet there may be some critical cases where regional government chooses to keep strategic roads open and has strong popular taxpayer support for doing so. The “regional emergency rehabilitation fund” might also be a target for matching foreign aid, but I have left donors outside of the local model in order to emphasize that they are not a necessary part of it.

The extent of OR and SNRDA consulting would most likely vary considerably between regions, depending on how well regional government could establish correct marginal rates for OR and SNRDA services. Some of the most experienced engineers will undoubtedly be absorbed by the same large operators most tempted to purchase OR equipment. Wealthier zones or even collectivities

might be willing to pay for an OR advisor, as might certain road users who perform a considerable amount of maintenance themselves but have not had access to government expertise in the past. For the local model to remain solid on its local interest foundation, it is essential that all technical services must be paid for in full and at competitive rates.

3. Can the Local Level Be Trusted?

Much has been written on the predatory nature of Zaïrean rural politics and economic relations (Nzongola-Ntalaja 1986, Callaghy 1984, Gould 1980). A chief argument against the “local model” might be that local government is far too corrupt and incompetent to be given responsibility over road use tolling and fines. Tolls were largely abolished in Zaïre in the early 1980’s because bribery and delays made a farce of honest collection.

I disagree with a refusal to depend on local government for two reasons. The first is that local government is no more corrupt and incompetent than national or regional government. If corruption and incompetence is to be expected (which it is), the road user may as well experience it on a local level, where he can argue with the advantages of community and proximity for his rights.

My second point is more profound: corruption is particularly widespread at the local level in Zaïre because individual action depends on many levels of government, which all make their claims on collected resources. After long delays and inefficiencies, the regional and national governments redistribute funds and services back to the local level. Through two or three layers of bureaucratic costs and corruption, as well as over time with hyperinflation, the actual value of goods and services returned is far lower than the initial amount extracted from the rural population (this is particularly true as a large part of rural investment in many rural areas comes from international aid and private voluntary organizations). Local authorities have every incentive to cheat in tax collection in order to keep local tax resources locally. Davezies, Nicot and Prud’homme

(1988) estimate that more than 60% of local tax levies “evaporate.” This level of leakage for 1987 is approximately equivalent to \$40 million, and is particularly high in terms of infrastructure maintenance:²⁷

Table 5. Percent of 1987 Budget Expended on Budgeted Items

Type of Government	Salaries and Benefits	Infrastructure Maintenance	Investment	Accidental Expenses	Other	Total
Region	89%	1%	24%	0%	24%	30%
City	55%	6%	0%	∞	62%	42%
Urban Zone	38%	14%	0%	34%	21%	34%
Rural Zone	44%	25%	0%	1,921%	60%	48%
Collectivité	55%	70%	0%	139%	0%	59%
Combined	58%	20%	8%	148%	25%	41%

The local model should actually reduce tax evaporation by making local authorities fully responsible for the consequences of their actions. If it becomes clear that road maintenance subsidies from above will no longer support road maintenance, local officials will begin to bear greater popular pressure for a more honest allocation of taxed resources into effective government service.

Financing largely constrained to the local level would lead to the positive threat of local reaction against corrupt authority — an all too infrequent occurrence in Zaïre because of the vast distances which usually separate the masses and real authority. Local regulatory mechanisms have been encouraged by the establishment for the first time this year of ballot box elections for Collectivité level officials. Furthermore, Mobutu’s recent decision to allow a multi-party system will most likely further increase the pressures for local level accountability.

The research on local taxation by Davezies, Nicot and Prud’homme suggests that there is considerable leeway in local budgets for increased attention to infrastructure maintenance — if popular pressure were allowed to focus on local authorities for its provision.

Table 6. Percent Allocation of 1987 Local Budget by Category

Type of Government	Salaries and Benefits	Infrastructure Maintenance	Investment	Accidental Expenses	Other	Total
Region	48%	1%	4%	0%	47%	100%
City	79%	4%	0%	3%	15%	100%
Urban Zone	88%	4%	0%	3%	6%	100%
Rural Zone	64%	9%	0%	24%	3%	100%
Collectivité	63%	18%	0%	19%	0%	100%
Combined	59%	9%	1%	12%	19%	100%
Cost (1987\$)	\$11.6 M.	\$1.7 M.	\$0.3 M.	\$2.3 M.	\$3.7 M.	\$19.7 M.
% of Expenses	57%	9%	1%	13%	20%	100%

Nonetheless, I would expect that most zones would estimate that they can live with much less road maintenance than that assumed by foreign donors. Most rural road use is by urban based traders, agro-industry and other parastatals who have been quick to switch zones whenever road deterioration or local demands have cut profits. Yet for the rural elites influential in local government to preserve what profitable urban links they still have, they cannot overcharge their urban counterparts too far beyond their fair share of road use.

Essential to my conviction in the local model's feasibility is the close relationships between local government and the elites who use and benefit the most from motorized road transport. In many cases these individuals are one and the same. In cases where they are not or cannot be, such as in the case of the few remaining rural expatriates, the local model will encourage new local civic interest and duty, as powerful non-governmental elites will no longer be able to negotiate for subsidized maintenance over the heads of local political leaders.

The deteriorating condition of each zone's road network will become an increasing constraint to maintenance monitoring. Vehicles needed for effective government or contractor management and supervision of rural maintenance will become even more expensive and increasingly scarce. I do not expect, or even recommend, that local government use its collected tolls and road taxes in order to take on the expense of road maintenance implementation itself. This

has been tried in the past and has failed. What I do expect, however, is that local officials use both official and unofficial influence to encourage self-maintenance by individual organizations with the interest and capability to do so.

4. Estimated Social and Economic Impacts

The shift away from government road maintenance wage labor is largely complete for the Zairean peasant, both because of government lack of maintenance commitment and because of a recognition of changing self-interest. As the number and quality of schools, clinics and other social services has declined, along with the rural to urban trade in goods, the peasant's stake in national integration has fallen also.

Peasants who have applied themselves to road maintenance with their own hands have not seen significant benefits in increased trade or standards of living. On the contrary, roads have served more as vectors for outside intervention and exploitation than as vectors for new social services or manufactured goods. Those who have been able to profit the most from the roads are rural elites who in general have preferred to use their accumulated surpluses for migration to Kinshasa rather than for rural investment.

To be sure, further declines in traffic because of government cuts in maintenance subsidies will be a great blow to rural people and their popular conception of the road as the "road to progress." Nonetheless, the economic impacts will not be so great as is imagined by project writers who equate withdrawal from a national economy in deep crisis as an unmitigated disaster. A major readjustment to subsistence farming has already taken place, and the impact of reduced motorized traffic levels is increasingly an adjustment which rural people have already made.

Ultimately, I would expect that road deterioration will generate renewed interest in transportation forms which can be manufactured and supported locally. In northern Zaïre, the comparative advantages of barges and canoes will accentuate. In

southern Zaïre, oxen and donkeys may play a significantly larger role, as they do in geographically similar regions of Western Zambia and Zimbabwe.²⁸

Animal traction is much more promising now than several decades ago, because of advances against tropical diseases and experience in introducing large farm animals to Africa. For example, 29% of transport for farm to maize field trips in Western Zambia are done by sledge (a V-shaped wooden frame with loading shelves and sticks on its runners. Another 17% of trips are done by oxcart. The sledge is the more popular mode, despite its slow speed, because it is easily made and requires no spare parts.²⁹ Bicycles, despite their foreign exchange costs, are also an appropriate technology whose surprising absence in Zaïre is largely explained through historical favoritism of motor vehicles affordable only to elites.

From a case study of rural transportation patterns in rural Kenya, Kaira (1983) argues that rural transportation development should focus on intermediate vehicle technology using various types of bicycles and animal traction, rather than on feeder roads requiring much less affordable motor transport. Since most transportation in rural areas is done on foot paths and over short distances, local transportation — what goes on between the feeder road and the homestead — is the most important link in the rural economy. Rural transport development therefore would benefit most from a program rather than a project approach: reducing road construction and rehabilitation projects in favor of programs to build research and disseminate information on intermediate technology vehicles which would be most useful to farmers on their own land.

There have been virtually no initiatives in non-motorized transportation systems since the Belgians gave up on elephants as police vehicles in the 1920's. Despite the promise of appropriate technology, the development and diffusion of new Zaïrean transportation technologies would take years. In the meantime, people may choose to relocate nearer to strategic arteries which they believe will remain open for motorized trade. Increases in rural densities along roads would make road maintenance more sustainable

by increasing the manpower available for their maintenance and shortening the economic zones which they serve.

The impact of lower road maintenance levels on population movement is not altogether clear. The essential question is whether sporadically maintained, high operating cost roads are less likely to promote urban culture and to attract peasants towards the cities, or whether declining agricultural trade will force peasants to seek in town the manufactured goods they need. These questions depend themselves on whether agricultural production will plummet without motorized transport and will force peasants to become urban refugees, or whether road deterioration will on the contrary redistribute more transportation benefits at the local level by encouraging the manual collection and transport of agricultural produce.

My general impression is that rural roads in Zaïre have served as vectors for rural out-migration, and have increased the inequality of the peasants who remain. By closing the rural economy back to a common base of non-motorized transport, deterioration of rural infrastructure has actually been a progressive rather than a regressive trend. This interpretation runs contrary to the general assumption in the international literature that infrastructure deterioration is highly regressive, as elites are always able to pay more than the poor in order to provide some of their own infrastructure. I do not believe that this holds true in rural areas, where the choice is often between expending local surpluses to import of trucks and fuel if roads are well maintained or redistributing transportation benefits to the poor if more manual transport and road maintenance is required. For example, although portage carries a great stigma from the early colonial period, it does offer the opportunity for the redistribution of wealth to an extent which expenditure on fuel and other motor vehicle operating costs do not.

The environmental implications of road deterioration need also careful consideration. Roads have served as essential tools for extractive industries. Logging roads in particular have had an immense impact on the sociology and demographics of remote

groups living in the rapidly diminishing Zaïrean rain forest. To the extent that the rapid deforestation of northern Zaïre has reduced the levels of wild game which hunter societies such as the Ituri (Pygmies) depend on, the roads have forced dependence of these groups on their agrarian neighbors.

In general, increased road deterioration can be expected to slow the pace of logging and the clearing of forest for cash crops. The impacts, however, should not be significant. The logging industry largely finances its own roads, and is assumed to be profitable. It therefore would not be largely affected by the cutting of government subsidies to road maintenance. Also, traditional slash and burn agriculture will continue, whether crops are traded for urban goods or not.

The question of road impacts on rural population change and standard of living is worthy of an entire thesis in itself. My general impression is that, after a late colonial economic boom, most outlying rural areas have now largely returned to subsistence farming. If rural road quality continues to plummet because of a general failure in the local model's implementation to provide minimal levels of effective maintenance, the adjustment of rural life to deteriorated road conditions which have already taken place would nonetheless continue to mitigate any major impact on high urbanization rates or worsening economic trends.

CONCLUSION, Beyond the Road

Zaire today presents a dramatically different landscape, both administratively and economically, from its successful period of colonial road maintenance. The inevitable shortcomings of centralized road administration, compounded by the advent of trucks up to five times heavier (and thereby over fifty times as damaging), largely explain the failure of the road maintenance since independence. Although Zaire is an absolutist state, government control is nowhere as strong or stable as it was before independence. If road maintenance now were to revive as a true national priority, with strict regulations against damaging road use, there is little chance that nationally enforced rain barriers or axle-weight controls could be implemented honestly and effectively.

The best hope is to bring the costs and benefits of road use together at the local level, so that beneficiaries pay the full cost of and respond to damaging road use. There will be enormous abuses of local privilege (as is already the case) and significant free-rider impacts, but the local elites made fully responsible for maintenance will have the most to lose if they do not replace some of the lost government subsidies with their own pocketed wealth. Those who can afford to perform some road maintenance on their own initiative are also the ones who have the most to gain from such road maintenance.

This thesis underscores the vast differences between what development agencies sponsoring the rural roads literature (World Bank, USAID) believe as policy and what they actually succeed in carrying out. Incremental policy reform (decentralization, contracting and manual technology) can accomplish little against existing institutional interests and the larger political, moral and economic environment. Reform, in fact, is not a sufficiently powerful policy tool in the Zairean context — a more radical approach is necessary for change.

It is impossible in the Zaïrean context to coax a nationally or internationally planned work program into performing decentralized, labor-intensive repair. Sustainable rural road maintenance will only arise where its local advocates develop their own projects which they can justify from the beginning in their own minds. This requires from donors not just the spirit to reform the public sector so prevalent in the rural roads literature, but the will to allow the entire established rural maintenance structure which donors have painstakingly overbuilt to radicalize itself so that maintenance benefits meet maintenance costs.

Donors have taken years to adjust to less mechanized and less centralized road maintenance projects, and they will probably resist an approach which argues that their subsidies are part of the problem rather than the solution. The distinction between investment and subsidy is blurred in the ambitions of project planners, who always believe in the worth of their efforts. There is an irrepressible optimism in the development set that the next aid project will succeed, despite all historical, economic and institutional evidence to the contrary. Consultants and advisors fail to see that the more they achieve, the more tragically unsustainable a situation their inevitable departure will create.

The essential question is whether local management of rural road maintenance will increase through government policy, or whether it will become the de facto standard through the abandonment of current maintenance structures. By promoting appropriate policy while no longer subsidizing rural road maintenance, donors can send a clear signal in favor of local solutions and speed the transition to effective local maintenance responsibility.

Will the established institutional and professional interests of the donor community in promoting current approaches give way to a longer view understanding and wisdom? My guess is that donors will eventually give up on subsidizing rural road maintenance in Zaïre after the total failure of the next round of projects in five years. Their abandonment will be a cataclysmic one, rather than a graceful

exit, as Zaïre will have become even more dependent on its donors as it is today.

I hope, however, that my pessimism is unjustified. Recent project papers for Zaïre show increasingly realistic concerns about project sustainability. Donors may yet come to the sensible conclusion that policy change can be advocated without also needing to spend millions of dollars on the demonstration of its implementation, such as the right way to subsidize road maintenance contracts.

More research needs to be done on how local model type strategies succeed in Sub-Saharan countries besides Zaïre, as well as in Asia and Latin America. My suspicion is that local approaches to road maintenance are encouraging cost-effective road use throughout much of the developing world. My intention is not to affirm, however, that the local model is a broad solution to the road maintenance crisis in developing countries. The experience of newly industrialized countries has proven that the higher transportation flows generated by healthy economies require the transition to sophisticated, bureaucratic systems of road maintenance (generally through very high government subsidies). Nor do I assume that the local model provides a basic solution for the many economies with few prospects for positive growth in the foreseeable future. My hope is rather to help stir a debate about the value of the local model itself, with particular interest in its development in Zaïre and its implications for foreign aid.

NOTES

- 1 World Bank, *Road Deterioration in Developing Countries: Causes and Remedies*, (Washington: World Bank, 1988), p. V. Estimates considered to now have more than doubled by Henri Pouliquen, Director of the World Bank's Infrastructure Division, Lecture at the Center for Transportation Studies, MIT, April 5, 1990. I use the doubled estimates.
- 2 Asif Faiz, Clell Harral, and Frida Johansen. "State of the Road Networks in Developing Countries and a Country Typology of Response Measures" in Transportation Research Record N° 1128, 1987.
- 3 World Bank, First Transport Rehabilitation Project., Report No. 7285-ZR, (Washington: World Bank, 1989), p. 4.
- 4 Estimated from OR 1986-1988 traffic counts found in Annex II. National paved road and national unpaved road traffic is not differentiated in the counts. Based on the checkpoint maps, I use a paved road ADT of 293 weighed by 10 checkpoints and an unpaved road ADT of 19 weighed by 51 checkpoints in order to meet the aggregate ADT of 63 for national roads.
- 5 The World Bank, Road Deterioration in Developing Countries, Causes and Remedies, (Washington D. C.: World Bank, 1988), p. 41
- 6 Michel le Carré, Réflexions et études sur le cantonnage manuel, (Lubumbashi: Offices des Routes Shaba, 1989), p. 1.
- 7 1930-1973 data from Bokemposila Ike Ofishe, "Évolution du parc automobile de la République du Zaïre," in Kalongo Mbikayi, Ed., L'Automobile et la sécurité routière en droit zaïrois, (Kinshasa: Presses Universitaires du Zaïre, 1982), p. 22.
- 8 République du Zaïre, Département des Transports et Communications, Bureau du Commissaire d'État, Goupe d'études économie et Planification, Étude du secteur privé dans le domaine du transport des marchandises au Zaïre. Transport routier, 1985, p. 52.
- 9 Data for 1930-1973 from Bokemposila Ike Ofishe, "Évolution du parc automobile de la République du Zaïre," in Kalongo Mbikayi, Ed., L'Automobile et la sécurité routière en droit zaïrois, (Kinshasa: Presses Universitaires du Zaïre, 1982), p. 22. Data for 1977 and 1984 from République du Zaïre, Département des Transports et Communications, Bureau du Commissaire d'État, Goupe d'études économie et Planification, Étude du secteur privé dans le domaine du transport des marchandises au Zaïre. Transport routier, 1985, p. 54. The 1977 and 1984 data do not include cars, motorcycles and buses, and are based on vehicle registrations rather than location of vehicle use. Actual distribution may be somewhat less concentrated in Kinshasa.

- ¹⁰ Michel le Carré, Réflexions et études sur le cantonnage manuel, (Lubumbashi: Offices des Routes Shaba, 1989), p. 1.
- ¹¹ Aggregate OR and SNRDA received budgets are from Robert Hall, Louis Siegel and Peter Maxson, Proposal for Regional Management and Finance of Road Maintenance and Rehabilitation in the Republic of Zaïre (Draft), (Burlington: Associates in Rural Development, March, 1990), p. 13. I allocated the budgets by road type according to percentage allocations cited in USAID, Transport Sector Background Paper (Draft), (Kinshasa, USAID PDO, January 1990), p. 2. The percentage allocations are referenced as coming from Office des Routes files.
- ¹² Erol Haker, Transport Reform Program, Annex: The Transport Sector in Zaïre, (Washington: World Bank, 1990), p. 15.
- ¹³ Erol Haker, Transport Reform Program, Annex: The Transport Sector in Zaïre, (Washington: World Bank, 1990), p. 14.
- ¹⁴ World Bank, Transportation Sector Memorandum, Report No. 6317-ZR, (Washington: World Bank, 1986), p. 17.
- ¹⁵ USAID-Zaïre PDO. Transport Sector Background Paper. Draft. (Kinshasa: USAID, January 1990), p. 1.
- ¹⁶ World Bank, Transportation Sector Memorandum, Report No. 6317-ZR, (Washington: World Bank, 1986), p. 9.
- ¹⁷ République du Zaïre, Département des Transports et Communications, Bureau du Commissaire d'État, Goupe d'études économie et Planification, Étude du secteur privé dans le domaine du transport des marchandises au Zaïre. Transport routier, 1985, p. 47.
- ¹⁸ Callaghan, Curtis, Appendix on Road Transport (Annex to USAID Transport Reform Program), (Kinshasa: Louis Berger International, 1990) p. 11.
- ¹⁹ Janet MacGaffey, "Fending for Yourself: The Organization of the Second Economy in Zaïre," in Nzongola-Ntalaja, Ed, The Crisis in Zaïre: Myths and Realities, (Trenton: Africa World Press, 1986), p. 149.
- ²⁰ Robert Hall, Louis Siegel and Peter Maxson, Proposal for Regional Management and Finance of Road Maintenance and Rehabilitation in the Republic of Zaïre (Draft), (Burlington: Associates in Rural Development, March, 1990), p. 23.
- ²¹ USAID-Zaïre PDO. Transport Sector Background Paper. Draft. (Kinshasa: USAID, January 1990), p. 1.
- ²² The source of this survey is not specified, but it stems probably from USAID road rehabilitation projects in Bandundu.
- ²³ Erol Haker, Transport Reform Program, Annex: The Transport Sector in Zaïre, (Washington: World Bank, 1990), pp. 39-40.

- 24 World Bank, Republic of Zaïre Transport Sector Memorandum, (Washington: World Bank, 1986), pp. 22.
- 25 World Bank, Republic of Zaïre Transport Sector Memorandum, (Washington: World Bank, 1986), pp. 23.
- 26 See Map 1 in Annex II. While all copper exports (the lifeline of Zaïre) could transit through South Africa, such a policy would not be considered acceptable. Also, the road parts of the Voie Nationale may sustain traffic of a high enough value to justify rehabilitation. A thorough study of the Voie Nationale is found in the World Bank's First Transport Rehabilitation Project.. Report No. 7285-ZR. (Washington: World Bank, 1989).
- 27 Davezies, Laurent, Bernard Henri Nicot and Rémy Prud'homme. Les finances publiques régionales et locales au Zaïre. (Paris: LOEIL, Institut d'Urbanisme de Paris, December 1988), p. 36. Table 5 from p. 27
- 28 Ben H. Immers, Erns J. Malipaard, and Michel J. H. Oldenhof, "Transport in Rural Areas of Developing Countries: Empirical Findings from Western Province, Zambia," in Transport Research Record 1167, 1988, p. 54.
- 29 Ben H. Immers, Erns J. Malipaard, and Michel J. H. Oldenhof, "Transport in Rural Areas of Developing Countries: Empirical Findings from Western Province, Zambia," in Transport Research Record 1167, 1988, p. 55.

BIBLIOGRAPHY

- Alfelor, Roemer Matubis. Optimal Maintenance Frequencies for Unpaved Roads. Cambridge: MIT Master's Thesis, May 1988.
- Anderson, G. William and Charles G. Vandervoort. Rural Roads Evaluation Summary Report. Washington: USAID, AID Program Evaluation Report N° 5, March 1982.
- Baldwin, Sara E., Martin J. Hanson, and Michael A. Thompson. "A Computer Model for Developing Road Management Strategies" in Transport Research Record N° 1106, Volume 2, 1987.
- Bhabdari, A., C. Harral, E. Holland and A. Faiz. "Technical Options for Road Maintenance in Developing Countries and the Economic Consequences" in Transportation Research Record N° 1128, 1987.
- Brown, John and Kabwenge Muzungu. Private Sector Road Maintenance in Zaïre. Kinshasa: USAID Zaïre Project Design and Operations Office, August, 1989.
- Callaghan, Curtis. Appendix on Road Transport (Annex to USAID Transport Reform Program). Kinshasa: Louis Berger International, 1990.
- Carapetis, et al. The Supply and Quality of Rural Transport Services in Developing Countries: A Comparative Review. World Bank Staff Working paper no. 654. Washington: World Bank, 1984.
- Cook, Cynthia. "Evaluating Alternative Maintenance Strategies for Low-Volume Roads in Sub-Saharan Africa" in Transport Research Record N° 1106, Volume 1, 1987.
- Cook, Cynthia, et al. Institutional Considerations in Rural Roads Projects. World Bank Staff Working Paper no. 748. Washington: World Bank, 1985.
- Eck, Ronald W. "A Microcomputer Program to Assist in Low-Volume Road Rehabilitation Decision Making" in Transportation Research Record N° 1128, 1987.
- Davezies, Laurent, Bernard Henri Nicot and Rémy Prud'homme. Les finances publiques régionales et locales au Zaïre. Paris: LOEIL, Institut d'Urbanisme de Paris, December 1988.
- Fägerskiöld, Johan. Baseline Study of the Kwilu Subregion. Washington: Louis Berger International, 1988.
- Faiz, Asif, Clell Harral, and Frida Johansen. "State of the Road Networks in Developing Countries and a Country Typology of Response Measures" in Transportation Research Record N° 1128, 1987.
- Hall, Robert, Louis Siegel and Peter Maxson. Proposal For Regional management and Finance of Road Maintenance and Rehabilitation in the Republic of

- Zaire. Burlington, Vermont, Associates in Rural Development, March 1990.
- Haker, Erol. The Transport Sector in Zaire, An Analysis of the Road Subsector. Washington: The World Bank, 1990.
- Harral, Clell G. Road Deterioration in Developing Countries: Causes and Remedies. Washington: World Bank, 1988.
- Immers, Ben H., Ernst J. Malipaard, and Michel J. H. Oldenhof: "Transport in Rural Areas of Developing Countries: Empirical Findings from Western Province, Zambia" in Transport Research Record N° 1167, 1988.
- Kaira, C. K. Transportation Needs of the Rural Population: An Approach to Improved Development Planning. Karlsruhe: Institut für Regionalwissenschaft der Universität Karlsruhe, 1983.
- Le Carré, Michel. Réflexions et études sur le cantonnage manuel. Lubumbashi: Office des Routes Shaba, February, 1989.
- Levy, Hernán and Malone, Patrick O. Transport Policy Issues in Sub-Saharan Africa. Economic Development Institute of the World Bank Policy Seminar Report No. 9. Washington: The World Bank, 1988.
- Long, Peter, Goni Lawan, and Pascal Mignery. "A Periodic Maintenance Management System for Low-Volume Roads in Niger" in Transport Research Record N° 1106, Volume 2, 1987.
- Newbery, David M. et al. Road Transportation Taxation in Developing Countries. World Bank Discussion Paper No. 26. Washington: World Bank, 1988.
- Nzongola-Ntalaja, Ed. The Crisis in Zaire: Myths and Realities. Trenton: Africa World Press, 1986.
- Mock, Christopher et al. Central Shaba Agricultural Development Project: Start-Up Evaluation. Washington: USAID, 1988.
- Office des Routes. Manuel de Cantonnage. Kinshasa: Office des Routes, Direction Formation, August 1986.
- Pautsch, Gregory R. and C. Phillip Baumel. "A Microcomputer Program to Evaluate the Benefits and Costs of Alternative Investment Strategies on Low-Volume Local Rural Roads" in Transportation Research Record N° 1128, 1987.
- République du Zaïre, Département des Transports et Communications. Etude du secteur privé dans le domaine du transport des marchandises au Zaïre. Kinshasa: Bureau du Commissaire d'Etat, Groupe d'Etudes Economie et Planification, 1985.
- République du Zaïre, Département du Plan. Second projet de réhabilitation du secteur des transports.: Sous-secteur aérien et routier. Tome 3: Service national des Routes de Desserte Agricole. Kinshasa, Département du Plan, March 1988.

- République du Zaïre, Office des Routes. Conception routière zaïroise: niveaux et coûts d'entretien de routes en terre. Kinshasa: Cellule de recherches routières, September, 1982.
- République du Zaïre, Office des Routes. Evaluation technique et financière des travaux d'entretien des routes de desserte agricole dans les zones de Moba, Nyunzu, Kabalo et Kongolo -(2). Lubumbashi: Office des Routes Shaba, July 1988.
- République du Zaïre, Office des Routes. Evaluation technique et financière des travaux d'entretien des routes de desserte agricole dans les zones de Kongolo (R. G.) et Nyunzu -(2). Lubumbashi: Office des Routes Shaba, July 1988.
- République du Zaïre, Office des Routes. Evaluation technique et financière des travaux d'entretien des routes de desserte agricole dans les zones de Kaniama, Dilolo et Sandoa -(3). Lubumbashi: Office des Routes Shaba, July 1988.
- République du Zaïre, Office des Routes. Manuel d'entretien des routes de desserte agricole par cantonnage. Kikwit: Office des Routes CFR 290, June 1986.
- Tighe, David et al. Étude de préparation d'un programme de réhabilitation et d'entretien de routes de desserte agricoles. London: Scott Wilson Kirkpatrick & Partners, March 1989.
- Tighe, David, Georges H. Désilets, and Alan W. Brookes. Réhabilitation et entretien des routes de desserte agricole par des techniques à forte intensité de main-d'œuvre: Zones de Lubero et de Beni/Nord-Kivu (Zaïre). CIDA, June 1987.
- Scott, Gerald Tully. "The Problems in Implementing Maintenance Management Systems in Developing Countries" in Road Maintenance Management in Developing Countries. London: PTRC Summer Annual Meeting, University of Sussex, Proceedings of Seminar G, July 1985.
- Siegel, Louis, Robert Hall, and Jean McNeil. Decentralized Finance and Management of Road Maintenance in Zaïre. Associates in Rural Development, August 1989.
- Smith, Graham, and Clell Harral. "Road Deterioration in Developing Countries: Financial Requirements" in Transportation Research Record N° 1128, 1987.
- Visser, A. T. "The Maintenance and Design system: A Management Aid for Unpaved Road Networks" in Transport Research Record N° 1106, Volume 1, 1987.
- Vengroff, Richard. Development Administration at the Local Level: The Case of Zaïre. Syracuse: Syracuse University, 1983.
- World Bank. First Transport Rehabilitation Project.. Report No. 7285-ZR. Washington: World Bank, 1989.

World Bank. Road Deterioration in Developing Countries: Causes and Remedies. Washington: World Bank, 1988.

World Bank. Transportation Sector Memorandum, Report No. 6317-ZR. Washington: World Bank, 1986.

USAID. Central Shaba Agricultural Development Project Paper. No. 660-0105. Washington: USAID, 1986.

USAID-Zaire PDO. Transport Sector Background Paper. Draft. Kinshasa: USAID, January 1990.

ANNEX I, The 1989 USAID-OR Road Maintenance Survey

A. Description

The 1989 USAID-OR Road Maintenance Survey provides much of the data for this thesis. While the campaign began as a mechanism to meet an immediate need for information on central Shaba, USAID Zaire's Program Development Office (PDO) developed it into an opportunity for broad research on private sector road maintenance.

In August 1988, USAID submitted to OR a Central Shaba Project Implementation Letter to determine a short-list of qualified contractors for road construction, rehabilitation and maintenance. An advertizing campaign was to solicit responses from large mechanized private companies interested in Project 105 Section III road contracts. At the same time, the campaign would generate interest from small and medium-sized private organizations who might be useful for future OR-USAID projects.

At the beginning of September 1988, OR called a joint Conseil d'Adjudication (contractor selection committee) which confirmed the dual purpose of the survey: Project 105 Section III Preselection as one goal, and general data collection for future road maintenance projects as another. The Conseil decided to divide the two efforts, so that a basic questionnaire for general information could be used in both Bandundu and Shaba. The questionnaire was designed primarily by Tom Driscoll of USAID's PDO.

In October 1988, OR released a total of 2,300,000 Zaires (at the time \$11,000) from USAID's Bandundu Transport Project 028 in order to finance the Campagne d'Information. Local newspapers, radios, and posters were used in Kinshasa, Bandundu, and Shaba for a month of intensive advertizing.

Cit. Kabwenge Musungu of USAID's PDO distributed blank questionnaires to 6 local OR offices in both Bandundu and Shaba. Blank questionnaires were also available at OR's national headquarters in Kinshasa. Because of time limitations, OR offices in

the northern and southern ends of Bandundu, as well as in eastern Shaba, were not supplied with questionnaires. Interested organizations from these areas had to travel substantial distances in order to complete the information.

USAID extended the deadline for submission of completed questionnaires from mid December 1988 to mid January 1989. Even afterwards, most OR offices accepted late questionnaires. In total, OR and USAID received a total of 280 questionnaires: 159 expressing interest in Bandundu, 116 expressing interest in Shaba, and 5 expressing interest in both regions.

Given the unexpectedly high response rate, USAID took the opportunity to expand the Campagne d'Information into a full-scale research project. PDO hired me (John Brown) to assist Kabwenge Musungu in analyzing the survey's results. This process included 32 days of field work in Bandundu and Shaba, and benefitted from considerable participation by OR and SNRDA.

B. Quantitative Analysis

The original foundation of this thesis is the database of answered Campagne d'Information questionnaires. The database is subdivided for the two regions of Bandundu and Shaba. For each region, organizations are classified as a) organizations with experience in any type of road or bridge work, b) organizations with no experience but a substantial economic interest in local road maintenance, and c) organizations with no significant local interest in road maintenance. I entered the data from all organizations with road maintenance experience into spreadsheet. Quantitative results are found in the tables below.

C. Qualitative Analysis

In order to develop the greatest possible contextual understanding of private sector road maintenance, Citoyen Kabwenge and I completed my quantitative analysis by interviewing 17 organizations in Kinshasa, 49 in Bandundu, and 44 in Shaba. We

also interviewed an equal number of OR, SNRDA, Territoriale, USAID and other officials directly concerned with road maintenance.

Virtually all interviews were held at the organization's or official's place of work. Conversation times ranged from 30 minutes to well over an hour. We provided organizations with a relaxed, open-ended opportunity to define their local interest and experience in road maintenance. We also checked questionnaire data (particularly previous contracts and current equipment), and asked numerous questions about road work organization, training needs, and worker salaries and benefits. Interviews ended with my restatement of the difference between questionnaire completion and actual requests for road links made to OR or SNRDA.

D. Methodological constraints

1. Geographic and Temporal Restriction

The Campagne d'Information was targeted only towards organizations in Bandundu and Shaba. Consequently, my conclusions are made with Bandundu and Shaba specifically in mind, and may not be relevant for all of Zaïre.

For the follow-up interviews, Bandundu and Shaba's difficult roads remained a major constraint. Although we spent much of my time travelling (over 5,000 Km. in all, mostly at low speeds), Cit. Kabwenge and I were unable to reach many responding organizations in the northern and southern subregions of Bandundu (Maïndombe and Kwango), or in the east of Shaba. My overall impressions of road transportation in Zaïre are unavoidably constrained by the boundaries of my travel.

The timing of my trips is also significant. I visited Bandundu and Shaba in the dry season, when roads are at their best and most actively used. No contractor work was currently in progress however. In both regions, OR contracts were suspended since at least May 1988 (OR made some new funding available August 1, 1989).

SNRDA contractors were also waiting for back payments, ranging from one month in Shaba to four months in Bandundu.

2. Questionnaire Accuracy

a) Target audience

Despite the large number of returned questionnaires, the USAID-OR Survey generated responses from less than two-thirds of the organizations known to have contracts with OR or SNRDA. While many of the least effective organizations did not respond, some of the most highly reputed contractors did not also. The database is far from a complete repository of Bandundu and Shaba private sector road maintenance experience and interest.

The database reflects two major biases: towards urban organizations and towards requests for remote road links. The USAID-OR Survey inevitably favored organizations most likely to hear about it: urban groups, with greater access to newspapers, radio, television and business word-of-mouth through which the questionnaires were publicized. Eleven questionnaires were completed during my travels, mostly from isolated rural groups, such as missions and farmers who had considerable road maintenance experience and interest, but had not heard of the USAID-OR Survey.

The questionnaires solicited interest specifically in rural feeder roads. Thus the vast majority of organization requests were for SNRDA rather than OR roads. Had the questionnaires also solicited interest in maintaining OR national and regional roads, many responding organizations would have focused on less remote, more heavily used road links.

b) Experience

Many organizations under-represented their qualifications by not mentioning previous contracts. Either they did not understand some of the technical language and phrasing of the sections detailing

contracts, or they strictly respected the instructions to list only experience from the past two years.

By answering the questionnaires too strictly, many organizations also omitted maintenance experience gained on private farm roads, or when working as a road work supervisor or Chef de Collectivité. 25 responding organizations which I had originally qualified as “unexperienced” were found after interviews to actually have significant previous experience.

c) Interest

Requests to maintain road links were highly inflated relative to the attractiveness of current contracts. The questionnaires’ USAID sponsorship suggested lucrative possibilities, attractive to many incapable opportunists. Furthermore, some organizations requested that every road link in their area be maintained, from a public interest point of view.

Most organizations did not know before the interviews that current OR and SNRDA contracts are designed with virtually no margin for financial gain. After interviews, many organizations decided to cut back on their road link requests, or to focus on presumably more lucrative bridge construction. Even these revised numbers of kilometers generally exceed what organizations would actually wish to maintain if they expected to fulfill current OR or SNRDA contracts to the letter. Consequently, the road link requests listed should be considered close to absolute maximums.

d) Logistical capability

A major constraint to effective road maintenance is adequate contractor mobility for supervision. Unfortunately, the database’s registration of numbers of vehicles is only a poor measure of logistic capability. First, there is no indication of how far contractors must travel to the road links they are maintaining. Second, information on small (but often essential) means of locomotion such as bicycles and motorcycles is not specifically requested. Third, information on

larger vehicles is ambiguous. I tried through the interviews to clarify whether vehicles listed were actually used in the zone of interest. For statistical analysis, I considered only vehicles available locally and not permanently out of order. Organizations not interviewed were given the benefit of the doubt.

3. Justification of limitations

Overcoming any of the above-mentioned limitations would require considerably more time and money. As is, USAID has invested about \$12,000 in the original survey and \$7,000 in its follow-up (including my salary and in-country travel). I hope, however, that more research will develop from the survey, as its utility is far from exhausted.

E. Chronology of Research Trips

Bandundu Travel and Interviews

6/18 Kinshasa-Bandundu	1515 Office des routes
1015 Depart Kinshasa	1600 Ets. Muzinga Limputu (out of town)
1745 Arrivee Bandundu	
6/19 Bandundu	6/20 Bandundu
0715 Office des routes Cit. Kinsala, Conseiller financier regional Cit. Maseko, Ingenieur inspecteur Cit. Mayuma, Ingenieur de recherche	0730 Union paysanne du Zaire Cit. Wengesse, Directeur regional de projets
0815 SNRDA	0845 Ets. Banda Molende Cit. Banda, Proprietaire-gerant et deuxieme vice-president de l'Assemblee Regionale
Cit. Madrakile, Coordonnateur regional Cit. Sebagisha, Coordonnateur regional adjoint	0930 SNRDA
1000 Gouvernorat Cit. Samba Kaputo, Gouverneur de Bandundu	1000 Ets. Kanus Cit. Pupu, Gerant
1100 Office des routes	1115 Societe Agricole et Commerciale Cit. Kayinga, Directeur regional et Vice-President regional, ANEZA
1300 chez le Directeur regional de la voirie Cit. Balingi, Directeur de la voirie	1230 Ets. UFMM & Fils (out of town)

1330 Ets. Toko Wangata
Cit. Toko, Administrateur-Gerant

1430 Office des Routes

1600 ANEZA
Cit. Gwalumuna, Proprietaire, Ma-N'Gwalu
SPRL et Vice-President
urbain, ANEZA

6/21 Bandundu-Lunkuni

0715 Office des routes
Cit. Mukenge, Chef du chantier naval

0800 SNRDA

0900 Depart Bandundu

1200 Huilerie SICA SPRL, Kibay
Cit. Ngumina, Gerant

1400 Depart Kibay

1530 BAT Lunkuni
Cit. Kimwa, comptable
Cit. Mbay, Chef de Zone

6/22 Lunkuni-Bulungu

0700 BAT Lunkuni
Cit. Kisilia President du Conseil,
Collectivite Wamba

0800 Depart

0920 Bac de Bende
Cit. Mbula, Capitaine de Bac
1500 Arrive Bulungu

15:45 Ets. Pakhe & Fils
(at Kinshasa)

1600 Societe Fernandes Irmaos & Companie
Cit. Mubiala, Directeur, siege Bulungu

2000 Hotel Isu Nka, roundtable
Cit. Makwala, Coordonnateur CODAL
Cit. Mafuta, Secretaire, Ets. Isu Nka
Cit. Nkoy, Chef de collectivite, Mateko
Cit. Kakesa, Proprietaire, Ets. Kakesa

6/23 Bulungu-Kikwit-Idiofa

0800 Ets. Belle-Vue
Cit. Ngayuyu, President, et President
ANEZA Kwilu

1045 Depart Bulungu

1230 Arrive Kikwit

BSU
Cit. Darfour, Directeur interimaire

OR
Monsieur Shepler, Assistant technique
regional

1510 Depart Kikwit

1730 Arrive Idiofa

1900 Hotel Ndia
Mr. Pappas, USAID

6/24 Idiofa

0900 Ets. Ele
Cit. Mikwampaka, Administrateur-
proprietaire, President ANEZA
Idiofa

1130 Compagnie de Commerce du Bandundu
Cit. Sampungi, Directeur regional
interimaire

1700 Diocese d'Idiofa
Abbe Kandong
Pere Debeaucor

6/25 Idiofa

0930 Commissariat de zone
Cit. Mulomba, Commissaire de zone

1145 Ets. CEKO
Cit. Ondjieme, Gerant

1215 Ets. Kasanza Kakoy
Cit. Kasanza, Proprietaire

1330 Ets. Kapiten Lavung
Cit. Kapiten, Chef de collectivite, Idiofa-
Musanga

1515 Ets. Ansiem Ezung
Cit. Ansiem, Proprietaire-Administrateur

1730 L'Antenne de Bandundu
Cit. Kintolo, Editeur

6/26 Idiofa-Yasa Lokwa-Kikwit

0815 Ets. Ansiem Ezung
Cit. Ansiem, Proprietaire-Administrateur

0900 Ets. Sanga Sam
Cit. Ganampe, Charge commercial

0930 Depart Idiofa

1115 Mikwini bridge, Collectivite Yasa-Lokwa
Cantonniers

1230 Arrive Kikwit

1245 BSU Guest House
Monsieur Scheppler

1655 Ets. Zuna
Cit. Zuyi, Proprietaire

1815 Maison Mungala Mukoy
Cit. Mungala, Chef de collectivite, Yasa-Lokwa

6/27 Kikwit

0900 Interwood
Cit. Aka, assitant administratif

0930 Kimbondja
Citnne. Kasongo, Gerante

1015 AUTOZA
Cit. Kasende, PDG
Cit. Kasende, fils, Directeur regional

1100 AMS
Cit. Kasongo, Secretaire

1215 Ets. Nunga-Lubeye
Cit. Nunga, Proprietaire-Administrateur

1545 Ets. Mwalejima Kampew & Fils
Cit. Kampew, Conseiller principal,
Proprietaire, Ets. Zangoi

1900 AUTOZA
Cit. Kasende, fils, Directeur regional

6/28 Kikwit

0900 JVL/SIEFAC
Cit. Masungi, Chef de Poste

1000 Ets. Kimbonja
Citnne. Kasongo, Gerante

1100 Ets. Soleil-Couchant
Cit. Kawata, Gerant

1300 Huilerie Kibolo (Kikwit office closed)

1400 Guest House
Monsieur Scheppler, Conseiller technique
regional, OR

6/29 Kiwit-Paroisse Yasa

0900 Guest House
Cit. Mukadi, Chef de division de
coordination regionale, SNRDA,
Counterpart of Mr. David Tighe

1145 Centre de Formation OR
Cit. Kabulia, Chef de Centre
Cit. Miankwikila, Ingenieur chef de
formation en genie civil

1300 Depart Kikwit

1630 Paroisse Yasa
Pere Duquenne, Curee Interimaire

6/30 Yasa-Kingungi-Masi Manimba

0830 Depart Yasa

0900 cantonniers

1500 Gapak (not in)

1515 Manzanza & Fils (unknown)

1530 Paroisse Kingungi
Pere

1800 Collectivite Bindungi
Cit. _____, Chef de collectivite interimaire

2045 Arrive Masi-Manimba

7/1 Masi Manimba

0900 Office des routes
Cit. Kingwaya, Chef de brigade interimaire

1245 Centre SVD Ngondi
Pere Hoff, Directeur

1600 Ets. Gusema
Cit. Lunzembo, Gerant

1630 Ets. Uyinduyala
Cit. Uyinduyala, Proprietaire-Administrateur

1700 Ets. GAPAK
Cit. Yala, Chef d'agence

1730 HPK Huilmat
Cit. Kapay, Directeur d'exploitation
interimaire

2000 Hotel Relais Masi
Cit. Kingwaya, Chef de brigade interimaire

7/2 Masi Manimba-Masamuna-Misele-
Kenge

1015 HPK Huilmat
Cit. Kapay, Directeur d'exploitation
interimaire and staff

1230 Ferme Bamus & Fils
Cit. Mbala, President Delege General

1345 Depart Masi Manimba

1415 Arrive Masamuna, Ets. Mbongo-
Mpasi
Cit. Gutumbana, Secretaire

1500 Depart Masamuna

1515 Arrive Misele, Ets. Mabeka Zaire
Cit. Ndombe, Administrateur-Directeur

1545 Depart Misele

1700 Arrive Kenge

7/3 Kenge-Kinshasa

0815 Ibeka & Fils
Cit. Kabeya, Gerant

0930 Projet Alimentaire Kwango
Cit. Yangfu, Gerant

1030 Ets. Tout depend de Dieu
Citnne. Angarinaba Asseb, Comptable

1045 Office des routes
Cit. Thamba, Chef Unite de production,
Vice-pres. ANEZA Kwango
Cit. Suva, Adjoint technique
Cit. Masandu, Ingenieur de zone

1200 Ets. Musey Kavuka
Cit. Musey Kavuka

1230 Maison Luthom
Cit. Lukengo

1315 Ets. Nki-Bibwi (no one available)

1330 Depart Kenge

1715 Arrive Kinshasa

Shaba Travel and Interviews

7/21 Kinshasa-Lubumbashi

1120 Depart Kinshasa-Ndjili

1420 Arrive Lubumbashi (local time)

1430 SHADO
Bruce Spake, Shaba Development Officer
David Williams, Project Officer

1515 Office des routes
Francis Thomas, Conseiller technique
regional

1545 Office des routes
Cit. Ebengo, Coordonnateur regional
adjoint, SNRDA

1600 Office des routes

Cit. Nsitu, Directeur regional

1645 Karavia Hotel
Tom Driscoll, PDO
Mr. de Palmas, Conseiller financier,
Direction generale, OR

7/22 Lubumbashi-Kipushi-Lubumbashi

0830 Gecamines Developpement
Cit. Kapend, President Delege General

0930 M. Forrest
Mr. T. E. Forrest, Fonde de Pouvoir

1030 Construction Metallique au Shaba
Mr. Vaudano, Directeur, Domaine Agricole
de K, Directeur, CMS,
Representant, Lendor International Ltd.

Mr. Cillario, Directeur technique et Gerant,
CMS

1115 Karavia Hotel
Tom Driscoll, PDO

1300 Depart Lubumbashi

1315 Arrive Kipushi

1315 At Cit. Mungala's residence
Cit. Mungala, Directeur de la division
maintenance, Kipushi,
Gecamines Developpement, Conseiller de la
zone de Kipushi

1645 Kwete Minga (Not found)

1900 Depart Kipushi

1915 Arrive Lubumbashi

7/23 Lubumbashi

0915 Groupe Kagri
Cit. Kisebwe, Administrateur Directeur

1000 Ets. Kisimba Mbaie
Cit. Kisimba, President Proprietaire

1115 Societe Generale du Commerce
Cit. Kalenda, Directeur General

1215 Entreprises Generales Sulka
Cit. Sulu, Entrepreneur Responsable

1300 CMS-SAEZA
Mr. Cillario, Gerant

1530 Ferme Katikula
Cit. Zongwe, Proprietaire

1630 ASSAGRIKI
Cit. Bodika, President

7/24 Lubumbashi

0830 SHADO
Bob Braden

0930 SNRDA
Cit. Mwenge, Financier
Cit. Tsiumbu, Coordonnateur Regional

1000 OR
Cit. Nsitu, Directeur Regional

Cit. Morisho,

1045 Simwa (all representatives out of
town)

1050 Developpement Rural Integre KML
(all representatives out of
town)

1100 Ets. Kaga
Cit. Bamba, Administrateur Directeur

1145 ACTS/TMK (not in)

1200 ECORBA (company not known by
owner's wife; owner not found)

1215 Nkulu Kilumba (company moved,
address unknown)

1230 AKD (all representatives out of town)

1245 SHADO

1615 SOTRACOMEZA (company moved,
address unknown)

1630 MMK & Fils (not in)

1645 AGETCO
Cit. Kabal'a, Directeur General

2000 Hotel Shaba
Cit. Mulopo, PDG MMK & Fils

2015 Hotel Shaba
Cit. Morisho, Ing. OR

7/25 Lubumbashi-Likasi

0830 Depart Lubumbashi

0945 Arrive Likasi

0945 OR
Cit. Mampuya, Chef de Brigade

1015 DAGRIM (not in)

1030 Ets. Kalala (not in)

1035 Mukuna (not found)

1045 Swanepoel

1100 EIC
Cit. Halafu, Chef du personnel

1130 Manza (not in)

1200 Swanepoel

Cit. Muloway, President ANEZA, Chef du personnel, Swanepoel

1445 Swanepoel

Mr. Varentorren, Directeur technique

1630 OR road visit

Discussion with villagers, Pande

7/26 Likasi-Lubumbashi

0830 DAGRIM & AKD

Cit., Kafitwe, Directeur General DAGRIM, Administateur AKD, President Petites et Moyennes Entreprises Agricoles

1015 Depart Likasi

1145 Arrive Lubumbashi

1145 SHADO

Tom Driscoll, PDO
Bob hall, Consultant

1345 Hinterland Minier (not in)

1400 SNRDA & IRIZ

Cit., Mukalay, Commissaire du peuple
Manono, Conseiller IRIZ

1530 Office des routes

Cit Morisho, Adjoint technique

7/27 Lubumbashi-Kongolo

0800 SHADO

1245 Depart Lubumbashi

1530 Arrive Kongolo

1630 At Cit. Nguwa

Cit. Nguwa, Adjoint Technique, OR
Kongolo

1645 Groupe Kibwe Sakina

Cit. Kibwe Moez, Gerant

1730 Roundtable, At Cit. Nguwa

Cit. Kamwanga, Ets. Kamwanga
Cit. Fallay, Groupe Fallay

Cit. Lumbu Useni, Ets. Lumbu Useni

Cit. Kiyana Mangozi, Chef de Collectivite

Cit. Kimba Kalunga, Ets. Mali Ya Butoto

Cit. Mukome, Ets. Succes Ya Zando

Cit. Tambwe, Ets. Twende Mbele, President
ANEZA Kongolo

Cit. Twikwashene, Ets. Twikwashene

Cit. Kissimba Omari, Comite du

Developpement de Kongolo

Cit. Ngoy, Ingenieur de Zone Kongolo

1930 At. Cit. Nguwa

Cit. Nguwa, Adjoint Technique OR
Kongolo

Cit. Ngoy, Ingenieur de Zone Kongolo

Cit. Mulumba, Ingenieur de Zone Kabalo

2100 At Ing. Appelmans

Mr. Appelmans, Chief of Project 105

7/28 Kongolo

0830 Entreprise Kamwanga

Cit. Kamwanga, Directeur

0900 Groupe Fallay

Cit. Fallay, Directeur

Cit. Boga, Gerant

0930 Ets. Succes Ya Zando

Cit. Mukome, Directeur

Cit. Mulimbi, Gerant

1030 Zone Kongolo

Cit. Mashaku, Commissaire de Zone

1200 SOZADEV

Cit. Ndjubu, Conducteur des Travaux

1230 At Appelmans

Mr. Appelmans, Chief of Project 105

Mrs. Appelmans

Mr. Van Lock, Chief Mechanic

1515 Ets. Twende Mbele

Cit. Tambwe, President-Fondateur &
President ANEZA

1615 ESTAGRICO

Cit. Bosa, Directeur Production et Technique

1700 Ets. Lumbu Useni

Cit. Lumbu Useni, President

1730 Ets. Mali Ya Butoto

Cit. Kimba Kalunga, Proprietaire

Cit. Lumbu, Gerant

1800 Ets. MM
Cit. Katenga, Associe

1845 Ets. Eloba
Cit. Kayembe, Proprietaire

7/29 Kongolo-Kabalo

0745 Procure Kongolo
Msg. Mwamba
Abbe Mbuyu

0930 Ets. Kissimba Omari
Cit. Kissimba, Proprietaire, President du
Comite de Developpement

1030 Depart Kongolo

1345 Arrive Kabalo

1400 At Mr. Dai
Mr. Dai, Chief of Project, 105 Agriculture

1615 Ets. Kabilwa (not in)
Cit. Kabilwa, Proprietaire

1730 Commissaire de Zone Kabalo
Cit. Betu, Commissaire de Zone
Cit. Mulumba, Ingenieur de Zone OR

1900 Paroisse Kabalo
Pere Van Damme
Pere De Jaeger

2100 Ets. Kalu & Fils
Cit. Kalumba, Pasteur Communaute
Pentecotiste, Proprietaire-
President, Ets. Kalu & Fils
Cit. Mulala Amine, Proprietaire-President,
Ets. Mulala Amine
Cit. Kabilwa, Proprietaire Ets. Kabilwa

7/30 Kabalo-Kabongo

0645 Depart Kabalo

1200 Mission Catholique Budi
Pere D'Hont

1615 Arrive Kabongo

1630 Paroisse Christ Roi
Pere Cure Tenga

1700 At Cit. Ohenga
Cit. Ohenga, Ingenieur de Zone Kabongo

1800 Kime Base Camp
Mr. Bermont, Trainer CFER OR
Mr. Graf, Chief Mechanic 105 R
Cit. Kazadi, Adjoint Technique

7/31 Kabongo - Kamina

0830 J. Andriamanantoa, Field Engineer 105
R

0930 Kabongo Zone
Cit. Ramazani, Comizone Assistant

1045 Depart Kabongo

1415 Arrive Kamina

1430 At Cit. Kuispond, Chief Unite de
Production OR Kamina

1500 ECZ/Communaute Pentecotiste du
Zaire (In LSHI)

1630 Haut Lomami Sous-Region
Cit. Mulumba Kabwe, Commissaire Sous-
regional, Kamina

8/1 Kamina-Sandoa

0745 Depart Kamina

1145 Arrive Kayembe Mukulu
Cit. Kalenda Kabamba, Chef de Collectivite

1230 Depart Kayemba Mukulu

1815 Arrive Sandoa

1830 AIDRZ Base Camp
Mr. Pirnet, Maitre Foreur

8/2 Sando-Dilolo-Kasaji

0830 Depart Sandoa

1200 Arrive Dilolo

1215 Zone Dilolo
Cit. Dungu, Commisaire de Zone

1330 Ets. Kapend Tshimpotoy
Cit. Kapend, Proprietaire

1445 Depart Dilolo

1700 Arrive Kasaji

1700 Project 0115 Base Camp
Cit. Ndelo, Adjoint Technique OR
Mr. Zanieri, Chief Mechanic

8/3 Kasaji-Kolwezi

0900 Sous-Region Lualaba
Cit. Diangambi, Commissaire Sous-
Regional

1000 Ets. Tshifanaken
Cit. Tshifanaken, Proprietaire, Chef de
Groupement Nkambi

1030 Depart Kasaji

1530 Arrive Kolwezi

1545 Unite de Production Office des Routes
Kolwezi
Cit. Mbongompasi, Chef d'Unite de
Production

8/4 Kolwezi

0900 Ets. Sambumba
Cit. Sambumba, Proprietaire

0945 MECLAMO
Cit. Tshimbela, Directeur

1045 Ets. Matete
Cit. Ndumb Mukoj, President Directeur
Proprietaire

1130 SOZACOT
Mr. Panayotis, Directeur Gerant

1500 Visit of Nzilo SNEL road maintained
by Swanepoel

8/5 Kolwezi-Lubumbashi

0900 Ets. CBI
Cit. Chiwengo, Proprietaire

1100 Office des Routes Kolwezi
Cit. Mbongompasi, Chef d'Unite de
Production

1300 Depart Kolwezi

1715 Arrive Lubumbashi

8/6 Lubumbashi

8/7 Lubumbashi-Kinshasa

0800 SHADO

0900 SNRDA
Cit. Mwenge, Conseiller Financier Regional

1000 Office des Routes
Cit. Morisho, AT

1030 Projet Hinterland Minier
Cit. Oyokololo, Adjoint Technique

1130 Ets. Kwete Minga
Cit. Kwete Minga, Directeur

1200 SNRDA
Cit. Tsumbu, Coordonnateur Regionl

1230 Office des Routes
Cit. Kabongo, Coordonnateur Regional du
Cantonnage Manue;

1430 SHADO

1700 Depart Lubumbashi

1800 Arrive Kinshasa (local time)

FORMULAIRE D'INFORMATION
POUR
LES OPERATEURS ECONOMIQUES

Office des Routes
Poste De:

I. INSTRUCTIONS: Veuillez Lire Attentivement la Section I

I Date: 20.12.1988 Dans le cadre de l'exécution du Programme
M d'Investissement Public Prioritaire, l'Office
S des Routes (OR) en collaboration avec l'Agence Américaine pour le
T Développement International (USAID) lance une Campagne d'Information
R des Entreprises et Organisations privées (appelées ensuite Opérateurs
U Economiques) pour la réalisation de travaux de construction, de
C rénovation, et d'entretien des routes dans les régions du
T Bandundu et du Shaba. Un programme d'entretien et de réhabilitation
I des routes rurales est, en effet, envisagé et susceptible d'être
O financé par l'USAID. La procédure à employer sera celle de l'Appel
N d'Offres à la concurrence nationale des entreprises retenues.
S L'Office des routes et l'USAID dresseront, ensuite conjointement une
liste des opérateurs économiques retenus qui pourront être invités
aux consultations pour les travaux à effectuer dans ces régions.

II. GENERALITES: Veuillez Répondre à Chaque Question

a. NOM: (Entreprise, Organisation, Particulier)

CADULAC (SOJELAC) COOPERATIVE AGRICOLE DE DEVELOPPEMENT DU LAC

b. ADRESSE: (Adresse au Zaïre)

Avenue du FLAMBEAU N° 2272 / NDOLO.

(Concession BATA.)

B.P. 9347 KINSHASA 2.

Siège d'exploitation: Tolo S/LUKENIE

Place Commerciale NINA.

c. TYPE d'Organisation: (Entreprise, Particulier, Organisation
Bénévole, Missionnaire, etc.)

Entreprise coopérative et Commerciale

d. DATE de Formation de l'Organisation: 1988.

e. VEUILLEZ Indiquer la Catégorie
de Votre Organisation selon l'ampleur
des activités exécutées dans le passé.
(Choisissez-en Une)

Moyenne

GRANDE

Contrats au Dessus de
20.000.000 Zaires

MOYENNE
OK.

Contrats entre
1.000.000 et
20.000.000 Zaires

PETITE

Des Marchés Moins
de 1.000.000 Zaires

Noms des Principaux Responsables: (Président, Directeur, etc.)

	NOM	FONCTIONS	ANCIENNETÉ	ADRESSE
1.	BALUKA NASHINE	Adm. Délégué		Kushara
2.	MBUNARO IPOJAH	Adm. Directeur		Kushara
3.	Kesedjira IKWANE	Président d'Honneur et		Kushara
4.	M.K. CONSTRUCT.	du Comité de Gestion du		Kushara
		Projet		

5. Nombre des Employés Permanents

5

6. Affiliation avec l'INSS (Encartez)

oui

NON

7. La Nature de l'Activité de l'Organisation: (Choisissez Un ou Plusieurs)

- * 1. Construction Mécanisée Routes
- * 2. Génie Civil
- * 3. Topographie
- * 4. Commerce de Détails (Spécifiez)
- * 5. Agriculture (Spécifiez) Plantations
- 6. Construction Immobilière
- * 7. Construction des Ponts
- 8. Transport Commercial
- 9. Commerce de Gros (Spécifiez)
- 10. Autres (Spécifiez)

Utilisez cet Espace pour Informations Supplémentaires:

Le projet est dirigé par 2 ingénieurs Hautement expérimentés qui ont la qualité d'Administrateurs Directeurs Technique et Administrateur Directeur Technique Adjoint.

Le Conseil de Gestion est assuré par le Président Kesedjira IKWANE

IV.

BIENS, MATERIELS et EQUIPEMENTS

Indiquez les Biens Physiques Disponibles:

1.	Bureau (M2)	1	1804 ²	11.	Magasin (M2)	
2.	Hangar (M2)	1	5007 ²	12.	Atelier d'Usinage	
3.	Garage (M2)			13.	Camion Basculant	
4.	Bulldozer			14.	Niveleuse	
5.	Betonnière			15.	Camion Citerne	
6.	Compacteur Vibrant			16.	Compacteur Pneu	
7.	Grue Mobile			17.	Tracteur Pella	
8.	Pelle Mécanique			18.	Pickup Traction 2	
9.	Automobile		1	19.	Pickup Traction 4	
10.	Tracteur Agricole		1	20.	Autres	

Liste des Equipements
des Travaux Manuels
pour les Petites
Entreprises

x belles

* seaux

Liste des Equipements
Supplémentaires
pour les autres
Entreprises

TRAVAUX de CONSTRUCTIONS

Donnez la Situation de Vos Importants Marchés En Cours d'Exécution ou Attribués mais Non Encore Commencés:

Dates Attribution	Maître Ouvrage	Description - Lieu de Projet	Prix du Marché	Ingénieur Responsable

(Pour services rendus autres que la construction voir Section VII)

I. TRAVAUX de CONSTRUCTIONS AU COURS des DEUX DERNIERES ANNEES.

Donnez la Situation de Vos Importants Marchés Réalisés Au Cours de Deux Dernières Années:

Dates Attribution	Maître Ouvrage	Description - Lieu de Projet	Prix du Marché	Ingénieur Responsable
A TITRE BENEVOLE 1986/1987	SODELAC	3 ponts sur la route de Mbatale	± 1.000.000.F	Dir. NTWA.

(Pour services rendus autres que la construction voir Section VII)

II. AUTRES TRAVAUX

Donnez la Situation d'Importants Services Rendus Autres que la Construction Présentement En cours et Réalisés Au Cours des Deux Dernières Années:

Dates de Services	Maître Ouvrage	Description - Lieu de Services	Montant Services	Directeur Responsable

Utilisez cet Espace pour Informations Supplémentaires:

- * levée Topographique des 32 ponts de la Collectivité LUABU.
- * tirage de plans de structure et d'exécution des travaux de 32 ponts de la Collectivité LUABU sur les 2 mécanismes

a.

Intérêts Généraux:

Donnez Quelques Intérêts Généraux que Représentent les Travaux d'Infrastructure Routière pour la Région de Votre Juridiction.

La Collectivité de votre est découpée. faute des routes. La chefferie de Mbalo est rattachée de la chefferie de BOBAI.

1) Mbalo: 15 ponts

2) BOBAI: 17 ponts.

3) Rive gauche: digue de Belene 5Km + 1 pont.

La production agricole est de: Café: 4000 tonnes/an.

Mariage: 51278 tonnes/an

autres: 500 tonnes.

b.

Intérêts Spécifiques:

Si On Vous Attribue des Travaux Routiers (Surtout la Réhabilitation et l'Entretien), quels sont les Tronçons de Routes Rurales Prioritaires à Maintenir? Pourquoi?

Identifiez les Tronçons et indiquez les Nombres des Kilomètres.

Toutes les routes essentielles sont prioritaires. Parceque:

- L'axe A dessert la chefferie de Mbalo à Tolo qui est la porte principale d'entrée et de sortie.

- L'axe B dessert la chefferie de Bobai à Tolo qui demeure la porte orientale d'entrée et de sortie de toute la collectivité.

* La digue de 5Km et le pont de Belene est l'unique voie d'accès au lac.

* L'axe A est estimé à ± 320 Km de route. (Mbalo)

* L'axe B est estimé à ± 51 Km. de route.

N.B. du annex: la lettre du Chef de Collectivité au Gouverneur d'Etat au Développement Rural.

I. DECLARATION: Renseignements Fournis Sont Véridiques, Complets, Exactes

Fait à Lueshaka

le 20 décembre 1988

A.M. CADULAC - SOBELAC

(Nom de l'Organisation)

Par MBUHAHO IPODJAH

Administrateur Directeur Financier



ETS CADULAC
N.R.C. 13972
B.P. 9347 KIN
141K 21341 G

(Seau de l'Organisation)

MBUHAHO DE

LETTRE de CREDIT BANCAIRE

ne soumettre que le cas échéant pour indiquer la surface financière.
Les lettres de crédit bancaire doivent être établies sur papier à
en-tête d'une banque.

Nom de la banque: _____

Adresse: _____

Date: _____

Citoyen.

Une ligne de crédit d'un montant maximum de Laires _____
a été mise à la disposition de _____
pour être utilisée en tant que _____ besoin pour une durée de _____ mois.

Les actifs rapidement réalisables indiqués ci-dessous ont été déposés
en nantissement pour garantir la ligne de crédit suivante: _____

La ligne de crédit mentionnée ci-dessus a été octroyée en pleine
connaissance de cause des facilités accordées par d'autres banques
pour les montants suivants: _____

(Signature de l'Agent de la Banque)

DECLARATION SOUS SERMENT

(Nom)
ayant dûment prêté serment, déclare et
affirme qu'il/elle est _____ de _____
(Titre) (Nom de Banque)

Attesté et signé par devant moi ce _____ jour de 19____ dans la
Zone _____ Région _____

(Nom du Notaire Public)
(Sceau)

Ma commission expire le _____

REPUBLIQUE DU ZAIRE
REGION DE BANDUNDU
S/REGION DE MAINDOKHE

KBCMA, le 29 AVRIL 1988.-

N° 124/1770/25/88.

ZONE DE KUTU.

COLLECTIVITE DE LUABU.-

Transmis copie pour information :

-Au Citoyen Président du Comité Populaire
du M.P.R. et Commissaire de Zone de Kutu.

-Au Directeur National du Département de
Développement Rural

Objet : Recommandation.

à Kinshasa-Congo.-

Citoyen,

J'ai l'honneur de venir par la présente solliciter l'appui logistique du Département de Développement Rural pour l'érection des ponts dans la Collectivité de Luabu et l'aménagement des Routes de desserte agricole.

A cet effet, nous accordons toutes les prérogatives aux Citoyens Mbumako-Ipodjan et Lessedjina-Ikname-Ipuozia, compte tenu des intérêts qu'ils manifestent dans la Collectivité, de négocier et de conclure tous accords nécessaires avec le Département de Développement Rural et les entreprises susceptibles d'exécuter les travaux d'aménagement et l'érection des ponts.

- 3 ponts dans le groupement de Mbalo

- II ponts sur la route de Sanya

- 2 ponts sur la route de Madjoko

- I pont d'accès au village de Boku

- 3 ponts de sortie de Tolo sur la route Nord.

Je vous prie d'agréer, Citoyen, l'assurance de nos sentiments patriotiques et révolutionnaires.-



LE PRESIDENT DU COMITE POPULAIRE DU M.P.
ET CHEF DE COLLECTIVITE DE LUABU.

MILUBANI-BENGO-NGALA.-

Table I.A. USAID-OR Contractor Survey Statistics for All Responding Organizations

I. Survey Responses

<i>Organizations</i>	Org's with rd. maint. experience						No experience, local eco. interest						No experience, no local interest					
	Bandundu		Shaba		Total		Bandundu		Shaba		Total		Bandundu		Shaba		Total	
	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>
Answering survey	86	100%	42	100%	128	100%	50	100%	38	100%	88	100%	28	100%	41	100%	69	100%
Interviewed by John Brown	51	59%	25	60%	76	59%	8	16%	14	37%	22	25%	3	11%	5	12%	8	12%

II. Proximity to work zone

<i>Organizations with offices in</i>	Org's with rd. maint. experience						No experience, local eco. interest						No experience, no local interest					
	Bandundu		Shaba		Total		Bandundu		Shaba		Total		Bandundu		Shaba		Total	
	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>
Kinshasa	57	66%	6	14%	63	49%	25	50%	0	0%	25	28%	19	68%	6	15%	25	36%
Zone of rd. maintenace interest	71	83%	36	86%	107	84%	38	76%	38	100%	76	86%	10	36%	33	80%	43	62%

III. Activities

<i>Prime organizational activity</i>	Org's with rd. maint. experience						No experience, local eco. interest						No experience, no local interest					
	Bandundu		Shaba		Total		Bandundu		Shaba		Total		Bandundu		Shaba		Total	
	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>
Agriculture (A)	27	31%	6	14%	33	26%	26	52%	7	18%	33	38%	7	25%	3	7%	10	14%
Commerce (B)	25	29%	18	43%	43	34%	18	36%	19	50%	37	42%	19	68%	26	63%	45	65%
Construction (C)	14	16%	12	29%	26	20%	5	10%	3	8%	8	9%	3	11%	9	22%	12	17%
Rural Development (D)	5	6%	1	2%	6	5%	0	0%	7	18%	7	8%	7	25%	2	5%	9	13%
Government (G)	3	3%	3	7%	6	5%	0	0%	2	5%	2	2%	2	7%	1	2%	3	4%
Agro-Industry (I)	12	14%	2	5%	14	11%	1	2%	0	0%	1	1%	0	0%	0	0%	0	0%

Table I.B. Geographic and Experiential Distribution
USAID-OR Road Maintenance Survey Responses

I. Bandundu

<i>Primary zone of interest</i>	Organizations With Experience		Without Experi. With Local Interest		Without Experi. or Local. Interest	
	<i>quantity</i>	<i>%</i>	<i>quantity</i>	<i>%</i>	<i>quantity</i>	<i>%</i>
Bagata (BGT)	7	8%	1	2%	1	4%
Bolobo (BLB)	2	2%	0	0%	0	0%
Bulungu (BLG)	21	24%	18	36%	4	14%
Feshi (FSH)	2	2%	0	0%	1	4%
Gungu (GNG)	2	2%	1	2%	0	0%
Idiofa (IDF)	20	23%	11	22%	3	11%
Inongo (ING)	1	1%	1	2%	0	0%
Kahemba (KHB)	2	2%	1	2%	0	0%
Kasonga-Lunda (KSL)	3	3%	3	6%	0	0%
Kenge (KNG)	3	3%	8	16%	1	4%
Kiri (KIR)	1	1%	0	0%	0	0%
Kutu (KUT)	3	3%	1	2%	0	0%
Masi-Manimba (MAS)	9	10%	3	6%	3	11%
Mushie (MSH)	2	2%	0	0%	0	0%
Oshwe (OSH)	1	1%	1	2%	0	0%
Popokabaka (PPK)	2	2%	1	2%	2	7%
Road links not identified (XXX)	0	0%	0	0%	9	32%
Anywhere in Zaire (ZZZ)	5	6%	0	0%	4	14%
Bandundu Total	86	100%	50	100%	28	100%

II. Shaba

<i>Primary zone of interest</i>	Organizations With Experience		Without Experi. With Local Interest		Without Experi. or Local. Interest	
	<i>quantity</i>	<i>%</i>	<i>quantity</i>	<i>%</i>	<i>quantity</i>	<i>%</i>
Bukama (BUK)	0	0%	0	0%	0	0%
Dilolo (DLL)	3	7%	6	16%	1	2%
Kabalo (KBL)	2	5%	0	0%	3	7%
Kabongo (KBG)	2	5%	1	3%	0	0%
Kalemie (KLM)	0	0%	0	0%	0	0%
Kambove (KBV)	4	10%	0	0%	6	15%
Kamina (KMA)	0	0%	1	3%	1	2%
Kaniama (KNI)	1	2%	0	0%	0	0%
Kapanga (KAP)	1	2%	0	0%	0	0%
Kasenga (KAS)	1	2%	1	3%	2	5%
Kipushi (KPS)	1	2%	3	8%	5	12%
Kongolo (KNG)	8	19%	14	37%	9	22%
Lubudi (LBD)	3	7%	0	0%	0	0%
Malemba-Nkulu (MLB)	0	0%	2	5%	0	0%
Manono (MNO)	2	5%	0	0%	0	0%
Mitwaba (MIT)	0	0%	0	0%	1	2%
Mutshasha (MUT)	1	2%	6	16%	7	17%
Moba (MOB)	1	2%	0	0%	0	0%
Nyunzu (NYU)	2	5%	3	8%	0	0%
Pweto (PWE)	0	0%	0	0%	0	0%
Sakanina (SKN)	0	0%	0	0%	0	0%
Sandoa (SAN)	2	5%	1	3%	1	2%
Road links not identified (XXX)	0	0%	0	0%	5	12%
Anywhere in Shaba (SSS)	3	7%	0	0%	0	0%
Anywhere in Zaire (ZZZ)	5	12%	0	0%	0	0%
Shaba Total	42	100%	38	100%	41	100%

I. Survey responses

<i>Regional totals</i>	Bandundu		Shaba		Total	
	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>
Organizations answering survey	86	100%	42	100%	128	100%
Organizations interviewed by John Brown	51	59%	25	60%	76	59%

II. Road Maintenance Experience

<i>Origin of maintenance financing</i>	Bandundu		Shaba		Total	
	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>
OR attributaire contract	18	21%	10	24%	28	22%
SNRDA attributaire contract	9	10%	9	21%	18	14%
Other government attributaire contract	13	15%	4	10%	17	13%
Self-financed road maintenance	29	34%	7	17%	36	28%
Charitable funding (domestic and/or abroad)	9	10%	4	10%	13	10%
Government road/bridge construction contract	8	9%	8	19%	16	13%

III. Geography

<i>Organizations with offices in</i>	Bandundu		Shaba		Total	
	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>
Kinshasa	57	66%	6	14%	63	49%
the zone of road maintenance interest	71	83%	36	86%	107	84%

Kilometers of roads proposed to maintain

Total	27,393 Km	7,682 Km	35,075 Km
Median	210 Km	165 Km	198 Km
Mean	338 Km	248 Km	293 Km
Maximum	1,976 Km	710 Km	1,976 Km
Minimum	0 Km	39 Km	0 Km

IV. Activities

<i>Organizational Activites (not exclusive)</i>	Bandundu		Shaba		Total	
	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>
Mechanical road construction	8	9%	9	21%	17	13%
Civil engineering	10	12%	12	29%	22	17%
Topogaphy	7	8%	6	14%	13	10%
Retail commerce	41	48%	17	40%	58	45%
Wholesale commerce	68	79%	26	62%	94	73%
Building construction	26	30%	18	43%	44	34%
Bridge construction	31	36%	15	36%	46	36%
Commercial transport	28	33%	14	33%	42	33%
Wholesale commerce	23	27%	7	17%	30	23%

Prime organizational activity

	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>
Agriculture (A)	27	31%	6	14%	33	26%
Commerce (B)	25	29%	18	43%	43	34%
Construction (C)	14	16%	12	29%	26	20%
Rural Development (D)	5	6%	1	2%	6	5%
Government (G)	3	3%	3	7%	6	5%
Agro-Industry (I)	12	14%	2	5%	14	11%

V. Characteristics

<i>Classification</i>	Bandundu		Shaba		Total	
	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>
Corporation	45	52%	25	60%	70	55%
Sole proprietorship	27	31%	10	24%	37	29%
Government organization	3	3%	2	5%	5	4%
Non-profit organization	6	7%	2	5%	8	6%
Religious (missionary) organization	5	6%	3	7%	8	6%

<i>Size</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>
Annual gross over 20 million Zaires	13	15%	11	26%	24	19%
Gross between 1 million et 20 millions Z.	57	66%	29	69%	86	67%
Annual gross less than 1 millions Z.	16	19%	2	5%	18	14%

Mean seniority of the top 4 executives	10 years	10 years	10 years
Median number of permanent employees	30 empl.	68 empl.	40 empl.
Mean number of permanent employees	186.5 empl.	366.2 empl.	245 empl.
Subscribe to social security	62 72%	30 71%	92 72%

VI. Equipment

<i>Organizations with one or more</i>	Bandundu		Shaba		Total	
	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>	<i>quant</i>	<i>%</i>
Offices	74	86%	38	90%	112	88%
Hangars	67	78%	30	71%	97	76%
Garages	37	43%	25	60%	62	48%
Bulldozers	7	8%	8	19%	15	12%
Ciment mixers	14	16%	15	36%	29	23%
Vibrating compactors	5	6%	8	19%	13	10%
Mobile cranes	5	6%	7	17%	12	9%
Mechanical shovels	4	5%	7	17%	11	9%
Cars	27	31%	15	36%	42	33%
Agricultural tractors	16	19%	15	36%	31	24%
Commercial stores	52	60%	14	33%	66	52%
Tool shops	21	24%	15	36%	36	28%
Tilting trucks	10	12%	15	36%	25	20%
Graders	9	10%	11	26%	20	16%
Water trucks	10	12%	10	24%	20	16%
Pneumatic compactors	5	6%	8	19%	13	10%
Shovel tractors	6	7%	6	14%	12	9%
Pickup trucks (2 x 4)	13	15%	15	36%	28	22%
Jeeps (4 x 4)	43	50%	21	50%	64	50%
Medium and large transport trucks	33	38%	22	52%	55	43%
Vehicles for road maintenance surveillance	62	72%	23	55%	85	66%

Number of transport trucks

Total	233 Cam.	203 Cam.	436 Cam.
Median	1 Cam.	1 Cam.	0 Cam.
Mean	2.7 Cam.	4.8 Cam.	3.4 Cam.

Vehicle adapted to road maintenance surveillance (car, 4x4, pickup, motorcycle)

Total	410 Vehi.	475 Vehi.	885 Vehi.
Median	2 Vehi.	2 Vehi.	3 Vehi.
Mean	4.8 Vehi.	11.3 Vehi.	6.9 Vehi.

Table I.D. General Information, Organizations with a local econ. interest in road maint. 90

	Short Name	Work Zone	Organization Type	Main Work Activity	Wholesale/Bridges				Mech. Rd. Constr.		Vehicles available	
					Retail	Building	Civil Eng.	Topogr.	Road Maintenance	Experience	Km. Roads	Bridges Requested
1	Agri Kumutaka	Kongolo	Corporation	Commerce	✓	✓	✓	✓	Interest but no experience	199	9	1
2	AKD	Lubudi	Missionary	Rural Development	✓	✓	✓	✓	Office des Routes	120	3	1
3	Amanl Renove	Kongolo	Corporation	Commerce	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
4	AMS	Bulungu	Corporation	Commerce	✓	✓	✓	✓	Office des Routes	410	Not identified	1
5	Ansiem-Ezung	Idiofa	Sole Proprietor	Commerce	✓	✓	✓	✓	Interest but no experience	106	Not identified	4
6	ARTECO	Bulungu	Corporation	Construction	✓	✓	✓	✓	Interest but no experience	120	Not identified	
7	Atatela Anipap	Idiofa	Corporation	Agriculture	✓	✓	✓	✓	Interest but no experience	304	Not identified	
8	AUTOZA	Bulungu	Corporation	Commerce	✓	✓	✓	✓	SNRDA	796	14	3
9	AUXELTRA	Anywhere in Zaire	Corporation	Construction	✓	✓	✓	✓	Gov't road or bridge constr.	Any Amount	Any Amount	
10	AZCB ASBL	Kutu	Missionary	Construction	✓	✓	✓	✓	Mission or PVO financed	180	8	1
11	Bal-Moyel	Idiofa	Sole Proprietor	Agriculture	✓	✓	✓	✓	Interest but no experience	272	Not identified	
12	Bame	Inongo, Mushie	Corporation	Agriculture	✓	✓	✓	✓	Interest but no experience	494	Not identified	
13	Bamus & Fils	Masi-Manimba	Sole Proprietor	Agriculture	✓	✓	✓	✓	Self-financed	183	Not identified	1
14	Banda	Bagata	Sole Proprietor	Agriculture	✓	✓	✓	✓	Self-financed	32	2	
15	Baseho & Cie	Bulungu	Corporation	Construction	✓	✓	✓	✓	Office des Routes	210	Not identified	
16	BAT/Lunkuni	Bagata	Corporation	Agro-Industry	✓	✓	✓	✓	Self-financed	231	Not identified	6
17	BATEC	Idiofa	Corporation	Construction	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
18	Belle-Vue	Bulungu	Corporation	Commerce	✓	✓	✓	✓	Other gov't organization	120	Not identified	
19	Bieye Mafuta	Bulungu	Corporation	Agriculture	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
20	Bitshi Ingombe	Idiofa	Sole Proprietor	Commerce	✓	✓	✓	✓	Interest but no experience	403	Not identified	2
21	Bokoli	Bulungu	Corporation	Agriculture	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
22	Bongolo	Idiofa	Corporation	Agriculture	✓	✓	✓	✓	Office des Routes	394	12	6
23	Bonkul SPRL	Oshwe, Kutu	Corporation	Construction	✓	✓	✓	✓	Gov't road or bridge constr.	435	Not identified	2
24	Bosama	Oshwe	Sole Proprietor	Agriculture	✓	✓	✓	✓	Interest but no experience	111	Not identified	0
25	Bouryaba	Idiofa	Sole Proprietor	Commerce	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
26	Brig Agri-Artis	Kongolo	Corporation	Commerce	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	0
27	Bumpey	Idiofa	Non-Profit	Construction	✓	✓	✓	✓	Other gov't organization	75	Not identified	
28	CADESCO	MAS/Mokamo	Corporation	Commerce	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
29	CADULAC	ING/Tolo	Non-Profit	Commerce	✓	✓	✓	✓	Mission or PVO financed	Not identified	20	1
30	CAICO/Punza	ONG/Punza	Corporation	Agro-Industry	✓	✓	✓	✓	Self-financed	1372	9	4
31	Carri. Kisanga	Kambove	Corporation	Commerce	✓	✓	✓	✓	Self-financed	265	Not identified	2
32	CBI	Mutshasha	Corporation	Commerce	✓	✓	✓	✓	SNRDA	165	Not identified	1
33	CCB SPRL	Idiofa	Corporation	Agro-Industry	✓	✓	✓	✓	Self-financed	657	Not identified	
34	CEA	Bolobo	Corporation	Agriculture	✓	✓	✓	✓	Self-financed	477	11	3
35	CEADER	Bulungu	Corporation	Commerce	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
36	CEDECOM	Kipushi	Corporation	Rural Development	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
37	CEKO	Idiofa	Corporation	Commerce	✓	✓	✓	✓	Self-financed	400	5	1
38	CHIS-SAEZA	Anywhere in Shaba	Corporation	Construction	✓	✓	✓	✓	Gov't road or bridge constr.	Any Shaba	Any Shaba	13
39	CODAL	Bulungu	Non-Profit	Agriculture	✓	✓	✓	✓	Mission or PVO financed	195	Not identified	
40	Coll. Banga	Idiofa/Banga	Government	Government	✓	✓	✓	✓	Other gov't organization	200	Not identified	1
41	Coll. Kabongo	Kabongo	Government	Government	✓	✓	✓	✓	Other gov't organization	145	Not identified	
42	Coll. Kapla	Idiofa	Government	Agriculture	✓	✓	✓	✓	Other gov't organization	220	Not identified	1
43	Coll. Mateko	Idiofa	Government	Government	✓	✓	✓	✓	Other gov't organization	108	Not identified	1
44	Coll. Mwat-Yav	Kapanga	Government	Government	✓	✓	✓	✓	Other gov't organization	597	Not identified	
45	Comite de Dev	Kongolo	Corporation	Rural Development	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
46	COMULELE	Bulungu	Corporation	Agriculture	✓	✓	✓	✓	Self-financed	100	Not identified	1
47	COOPEMI	Bulungu	Non-Profit	Commerce	✓	✓	✓	✓	Mission or PVO financed	80	3	
48	Cooper. Kasali	Dilolo	Corporation	Agriculture	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
49	Cooper. Ndul	Bulungu	Non-Profit	Agriculture	✓	✓	✓	✓	Interest but no experience	420	Not identified	
50	COPAIM	Moba	Non-Profit	Commerce	✓	✓	✓	✓	Mission or PVO financed	642	Not identified	3
51	CORETI	Anywhere in Zaire	Corporation	Construction	✓	✓	✓	✓	Gov't road or bridge constr.	Any Amount	Any Amount	9
52	CPSAC SPRL	Idiofa	Corporation	Commerce	✓	✓	✓	✓	Self-financed	526	Not identified	
53	DAEP/Kwilu	Bulungu	Sole Proprietor	Agriculture	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
54	DAGRIM	Kambove	Sole Proprietor	Agriculture	✓	✓	✓	✓	Mission or PVO financed	40	Not identified	4
55	DAK	Lubudi	Corporation	Agriculture	✓	✓	✓	✓	Office des Routes	176	Not identified	3
56	Dev. Rur. KML	Malemba-Nkulu	Sole Proprietor	Rural Development	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
57	Dloc. d'Idiofa	Idiofa	Missionary	Rural Development	✓	✓	✓	✓	Mission or PVO financed	648	Not identified	7
58	Ebangobila	Idiofa	Corporation	Commerce	✓	✓	✓	✓	SNRDA	143	Not identified	1
59	ECZ Mawanga	Kasonga-Lunda	Missionary	Agriculture	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
60	ECZ/CPZ	Feshi, Malemba-Nkulu	Corporation	Rural Development	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
61	EES/SELEC	Kashima	Missionary	Construction	✓	✓	✓	✓	Mission or PVO financed	266	Not identified	10
62	EIC SPRL	Kambove	Corporation	Construction	✓	✓	✓	✓	Self-financed	75	Not identified	5
63	Eile	Idiofa	Sole Proprietor	Commerce	✓	✓	✓	✓	SNRDA	183	Not identified	2
64	ELOBA	Kongolo	Corporation	Commerce	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
65	Epaba Mamba	Idiofa	Sole Proprietor	Agriculture	✓	✓	✓	✓	Self-financed	220	36	1
66	ESTAGRICO	Kongolo, Nyunzu, Kabelo	Corporation	Agriculture	✓	✓	✓	✓	Office des Routes	Any Amount	Not identified	4
67	FEARDE	Kasonga-Lunda, Kenge	Corporation	Commerce	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
68	FERMAHI	Idiofa	Sole Proprietor	Agriculture	✓	✓	✓	✓	Self-financed	60	2	
69	Ferme Katikula	Kasonga-Lunda	Sole Proprietor	Agriculture	✓	✓	✓	✓	Self-financed	39	Not identified	
70	Ferme Segelis	Nyunzu	Corporation	Agriculture	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
71	Fernandes	Bulungu	Corporation	Agriculture	✓	✓	✓	✓	Office des Routes	610	Not identified	6
72	Forrest	Anywhere in Shaba	Corporation	Construction	✓	✓	✓	✓	Gov't road or bridge constr.	Not identified	Not identified	36
73	GAPAK SPRL	Masi-Manimba	Corporation	Agriculture	✓	✓	✓	✓	Interest but no experience	575	Not identified	1
74	GCM Develop.	Lubudi	Corporation	Agriculture	✓	✓	✓	✓	Self-financed	155	Not identified	9
75	Gr. Falley	Nyunzu, Kabelo	Sole Proprietor	Commerce	✓	✓	✓	✓	SNRDA	162	Not identified	1
76	Gr. Kibwe	Kongolo, Kabelo	Corporation	Commerce	✓	✓	✓	✓	Interest but no experience	119	Not identified	
77	Gr. Masudi	Nyunzu	Corporation	Commerce	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
78	Gr. Muganga	Kongolo	Corporation	Agriculture	✓	✓	✓	✓	SNRDA	245	Not identified	1
79	Gr. Munung	Sandoa	Corporation	Agriculture	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
80	Gr. NNM	Kongolo	Corporation	Agriculture	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
81	Groukat-Azaci	Kongolo	Corporation	Agro-Industry	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
82	Gusema	Masi-Manimba	Sole Proprietor	Commerce	✓	✓	✓	✓	Other gov't organization	180	Not identified	
83	HPK	Masi-Manimba	Corporation	Agro-Industry	✓	✓	✓	✓	SNRDA	1450	Not identified	1
84	HSK	Bulungu	Corporation	Agro-Industry	✓	✓	✓	✓	Self-financed	295	Not identified	
85	Huilerie Yelen.	Bulungu	Corporation	Agro-Industry	✓	✓	✓	✓	Self-financed	210	Not identified	3
86	Ibeka & Fils	Kenge	Corporation	Construction	✓	✓	✓	✓	Gov't road or bridge constr.	125	Not identified	
87	IBOLO	Bulungu	Corporation	Commerce	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
88	IBWE	Popokabaka	Corporation	Agriculture	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
89	Interwood	Bulungu	Corporation	Commerce	✓	✓	✓	✓	Self-financed	650	Not identified	
90	IRIZ Manono	Manono, Malemba-Nkulu	Non-Profit	Construction	✓	✓	✓	✓	SNRDA	469	Not identified	10
91	ISU Nka	Bulungu	Corporation	Commerce	✓	✓	✓	✓	Interest but no experience	80	Not identified	1
92	ITUTU Mbwisli	Bulungu	Sole Proprietor	Commerce	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
93	JVL-SIEFAC	Bulungu	Corporation	Agro-Industry	✓	✓	✓	✓	SNRDA	148	Not identified	1
94	Kabamba Mal.	Nyunzu	Corporation	Commerce	✓	✓	✓	✓	Office des Routes	274	Not identified	1
95	Kabamba Tal.	Dilolo	Corporation	Commerce	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
96	KAGA	Kipushi	Corporation	Construction	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
97	Kakesa	Bulungu	Sole Proprietor	Commerce	✓	✓	✓	✓	Self-financed	62	1	1
98	Kakwala	Mutshasha	Corporation	Construction	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
99	Kalema	Bulungu	Corporation	Agriculture	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	
100	Kalu & Fils	Kabalo	Corporation	Commerce	✓	✓	✓	✓	SNRDA	153	Not identified	
101	Kamwanga	Kongolo	Corporation	Commerce	✓	✓	✓	✓	SNRDA	136	Not identified	1
102	Kenus	Bulungu	Corporation	Commerce	✓	✓	✓	✓	Self-financed	289	Not identified	2
103	Kapend	Dilolo	Sole Proprietor	Commerce	✓	✓	✓	✓	Office des Routes	430	Not identified	2
104	Kapiten	Idiofa	Sole Proprietor	Rural Development	✓	✓	✓	✓	Other gov't organization	617	Not identified	1
105	Kasanza	Idiofa	Sole Proprietor	Commerce	✓	✓	✓	✓	Office des Routes	509	Not identified	1
106	Kikata	Masi-Manimba, Feshi	Corporation	Agriculture	✓	✓	✓	✓	Interest but no experience	Not identified	Not identified	

Table I.D. General Information, Organizations with a local econ. interest in road maint. 91

	Short Name	Work Zone	Organization Type	Main Work Activity	[Wholesale]Bridges [Mech. Rd. Constr. [Retail [Building [Civil Eng.				Road Maintenance Experience	Km. Roads Requested	Vehicles available	
					Agrie.	Transport	Topogr.				Bridges Requested	
107	Kimbondja	Bulungu	Corporation	Commerce	✓	✓	✓	✓	Office des Routes	380	15	3
108	Kishwa	Bagata	Sole Proprietor	Government	✓	✓	✓	✓	Other gov't organization	316	Not identified	1
109	Kisimba Mbele	Manono	Corporation	Commerce	✓	✓	✓	✓	Other gov't organization	198	Not identified	
110	Kisimba	Kongolo	Sole Proprietor	Commerce	✓	✓	✓	✓	Mission or PVO financed	363	Not identified	
111	Kumapende	Idiofa		Agriculture					Interest but no experience	Not identified	Not identified	
112	Lendor Int'l Ltd.	Anywhere in Shaba	Corporation	Construction	✓		✓	✓	Gov't road or bridge constr.	Any Shaba	Any Shaba	24
113	Lengelo	Gungu		Agriculture					Interest but no experience	Not identified	Not identified	
114	Limalou	Bulungu	Corporation	Commerce					Interest but no experience	Not identified	Not identified	
115	Lozo	Gungu	Corporation	Agro-Industry	✓	✓	✓	✓	Other gov't organization	206	Not identified	
116	Lumbu Useni	Kongolo	Sole Proprietor	Commerce	✓	✓	✓	✓	SNRDA	163	Not identified	2
117	Luminaza	Kongolo		Agriculture					Interest but no experience	Not identified	Not identified	
118	Luza	Mushie	Sole Proprietor	Commerce	✓	✓	✓	✓	Office des Routes	143	Not identified	
119	Ma N'Gwelu	Bulungu	Corporation	Agriculture	✓	✓	✓	✓	Self-financed	220	10	2
120	Mabeka	Masi-Manimba	Corporation	Agriculture	✓	✓	✓	✓	Self-financed	180	Not identified	2
121	Mafuta Sala	Bulungu	Sole Proprietor	Commerce					Interest but no experience	Not identified	Not identified	
122	Maleb Majaka	Kutu		Commerce	✓	✓	✓	✓	Self-financed	50	Not identified	
123	Maison Luthom	Kenge	Corporation	Agriculture	✓	✓	✓	✓	Interest but no experience	166	Not identified	1
124	Mali Ya Butoto	Kongolo	Corporation	Commerce	✓	✓	✓	✓	Self-financed	93	Not identified	4
125	Mambiki & Fils	Kenge	Sole Proprietor	Agriculture					Interest but no experience	Not identified	Not identified	
126	Manzanza	Kenge	Sole Proprietor	Agriculture					Interest but no experience	Not identified	Not identified	
127	Matete	Mutshasha		Commerce					Interest but no experience	Not identified	Not identified	
128	Matu Be-Endi	Idiofa		Agriculture					Interest but no experience	Not identified	Not identified	
129	Mbongo	Masi-Manimba	Corporation	Agriculture	✓	✓			Self-financed	100	Not identified	
130	Mbuku Nuni	Kenge	Sole Proprietor	Agriculture	✓		✓		Office des Routes	861	Not identified	1
131	MC Kabongo	Kabongo	Missionary	Rural Development					Interest but no experience	40	Not identified	1
132	MC Kasaji	Dilolo		Rural Development					Interest but no experience	Not identified	Not identified	
133	MC Sandoe	Sandoe	Missionary	Rural Development					Office des Routes	710	Not identified	3
134	MDZ	Anywhere in Zaire	Corporation	Construction			✓	✓	Gov't road or bridge constr.	Any Amount	Any Amount	45
135	Meclamo	Mutshasha		Agro-Industry					Interest but no experience	Not identified	Not identified	
136	Mindanga	Bulungu	Sole Proprietor	Agriculture					Interest but no experience	Not identified	Not identified	
137	MM	Kongolo		Commerce					Interest but no experience	Not identified	Not identified	
138	MMK & Fils	Kipushi	Corporation	Construction	✓	✓	✓	✓	Self-financed	75	Not identified	3
139	Mombembe	Bulungu	Corporation	Agriculture					Interest but no experience	Not identified	Not identified	
140	Mputu Mbwe	Bagata	Sole Proprietor	Agriculture	✓	✓	✓	✓	Office des Routes	180	Not identified	
141	Mputu Mputu	Idiofa	Sole Proprietor	Commerce	✓	✓	✓	✓	Interest but no experience	137	Not identified	3
142	Mputu Nkanga	Inongo, Kutu	Sole Proprietor	Agriculture	✓	✓	✓	✓	Office des Routes	104	Not identified	1
143	Mudimu	Idiofa	Sole Proprietor	Agriculture	✓				Other gov't organization	100	Not identified	
144	Mulala Amine	Kabalo	Corporation	Commerce	✓	✓	✓	✓	SNRDA	140	Not identified	
145	Mumba	Mutshasha		Commerce					Interest but no experience	Not identified	Not identified	
146	Mungela	Idiofa	Sole Proprietor	Agriculture	✓		✓		SNRDA	256	Not identified	1
147	Musey Kavuka	Kenge	Sole Proprietor	Commerce	✓	✓	✓	✓	Office des Routes	210	3	1
148	Muyumba	Kongolo		Commerce					Interest but no experience	Not identified	Not identified	
149	Muzinga	Masi-Manimba	Sole Proprietor	Agriculture	✓				Self-financed	125	Not identified	
150	Mwaku Yala	Kasonga-Lunda	Corporation	Agriculture	✓	✓	✓	✓	Office des Routes	65	Not identified	2
151	Mwalejima	Kahemba	Corporation	Commerce	✓	✓	✓	✓	Office des Routes	604	Not identified	4
152	Ndinga	Kasonga-Lunda		Commerce					Interest but no experience	Not identified	Not identified	
153	Nepa	Dilolo		Commerce					Interest but no experience	Not identified	Not identified	
154	Ngunza	Dilolo		Commerce					Interest but no experience	Not identified	Not identified	
155	Nki Bibwi	Kenge	Sole Proprietor	Commerce					Interest but no experience	Not identified	Not identified	
156	Nkita-Zaire	Feshi, Kasonga-Lunda	Corporation	Commerce	✓	✓	✓	✓	Other gov't organization	480	3	2
157	NMK	Kongolo	Sole Proprietor	Government	✓	✓	✓	✓	Other gov't organization	441	Not identified	1
158	Nsankien	Idiofa	Sole Proprietor	Agriculture					Interest but no experience	Not identified	Not identified	
159	Nunge-Lubeye	Bulungu	Sole Proprietor	Commerce			✓		Office des Routes	1732	Not identified	1
160	Nyembo Song	Kongolo		Commerce					Interest but no experience	Not identified	Not identified	
161	Nzawa-Sunga	Popokabaka	Sole Proprietor	Agriculture	✓	✓	✓	✓	Office des Routes	618	Not identified	2
162	Nzundu	Idiofa	Sole Proprietor	Construction	✓				Other gov't organization	178	Not identified	2
163	PAK ASBL	Kenge		Commerce					Interest but no experience	Not identified	Not identified	
164	Pakhe & Fils	Bulungu	Sole Proprietor	Agriculture	✓				Office des Routes	64	2	
165	Paroisse Budi	Kabongo	Missionary	M	✓				Mission or PVO financed	315	Not identified	1
166	Paroisse Yasa	Masi-Manimba	Missionary	Rural Development	✓		✓	✓	Mission or PVO financed	94	Not identified	1
167	PAK ASBL	Kasonga-Lunda	Non-Profit	Rural Development			✓	✓	Mission or PVO financed	351	Not identified	
168	Pokitebe	Kutu		Commerce					Interest but no experience	Not identified	Not identified	
169	PRODECAT	Kahemba	Corporation	Agro-Industry					Interest but no experience	Not identified	Not identified	
170	Projet Vie	Kasonga-Lunda	Non-Profit	Rural Development	✓	✓	✓	✓	Mission or PVO financed	793	17	4
171	RAK	Popokabaka	Corporation	Commerce	✓				Other gov't organization	195	Not identified	1
172	SAC	Bagata	Corporation	Agriculture	✓	✓	✓	✓	Self-financed	8	Not identified	3
173	SAFRICAS	Anywhere in Zaire	Corporation	Construction			✓	✓	Gov't road or bridge constr.	Any Amount	Any Amount	167
174	Sambumba	Mutshasha		Agriculture					Interest but no experience	Not identified	Not identified	
175	Sampedro	Masi-Manimba, Gungu	Corporation	Agro-Industry	✓	✓	✓	✓	Self-financed	145	1	1
176	Sanga Mfumu.	Bagata	Sole Proprietor	Agriculture					Interest but no experience	Not identified	Not identified	
177	Sanga-Sam	Idiofa	Corporation	Commerce					Office des Routes	198	Not identified	7
178	Sappe	Mutshasha		Agriculture					Interest but no experience	Not identified	Not identified	
179	SICA SPRL	Bulungu	Corporation	Agro-Industry	✓	✓	✓	✓	Self-financed	1976	Not identified	3
180	Simwa	Malemba-Nkulu	C	Rural Development					Interest but no experience	Not identified	Not identified	
181	SOCO	Bolobo, Mushie, Kutu	Corporation	Commerce	✓	✓	✓	✓	Self-financed	238	Not identified	4
182	SOCOBU	Bulungu	Corporation	Commerce					Interest but no experience	Not identified	Not identified	
183	SOGELEM	Idiofa	Missionary	Construction	✓		✓	✓	Gov't road or bridge constr.	200	Not identified	2
184	Soleli Couch.	Bulungu	Sole Proprietor	Commerce	✓		✓	✓	Self-financed	412	Not identified	1
185	SOZACOT	Sandoe	Corporation	Commerce	✓	✓	✓	✓	Self-financed	Any Amount	Not identified	3
186	SOZAGEC	Anywhere in Zaire	Corporation	Construction	✓	✓	✓	✓	Gov't road or bridge constr.	Any Amount	Any Amount	55
187	Success Ya	Kongolo	Corporation	Commerce					Office des Routes	81	Not identified	2
188	Sulka	Kipushi		Construction					Interest but no experience	Not identified	Not identified	
189	Swanepoel	Kambove	Corporation	Construction	✓		✓	✓	Office des Routes	Any Shaba	Any Shaba	57
190	Tabasenge	Bulungu		Construction					Interest but no experience	Not identified	Not identified	
191	Tambwe Hana	Nyunzu		Commerce					Interest but no experience	Not identified	Not identified	
192	Tambwe Tsh	Dilolo	Sole Proprietor	Commerce	✓	✓			Office des Routes	192	7	
193	Thoms B-Yam	Bagata	Sole Proprietor	Agriculture	✓				Self-financed	150	Not identified	2
194	Toko Wangela	Bagata	Corporation	Agriculture	✓	✓	✓	✓	Office des Routes	340	Not identified	1
195	Tomanko	Mushie	Sole Proprietor	Agriculture	✓	✓	✓	✓	SNRDA	170	Not identified	1
196	Tosangana	Kiri	Corporation	Commerce	✓	✓	✓	✓	SNRDA	118	Not identified	
197	Tout depend	Kenge	Sole Proprietor	Commerce					Interest but no experience	Not identified	Not identified	
198	Trans Kwango	Kenge, Popo., K.-Lunda		Agriculture					Interest but no experience	Not identified	Not identified	
199	TRAYAS	Kenge	Corporation	Construction	✓	✓	✓	✓	Interest but no experience	371	Not identified	
200	Tshata	Dilolo	Sole Proprietor	Commerce	✓				Office des Routes	88	Not identified	
201	Tshifenaken	Dilolo		Commerce					Interest but no experience	Not identified	Not identified	
202	Twende Mbele	Kongolo	Sole Proprietor	Commerce					Interest but no experience	Not identified	Not identified	
203	UGZ	Bulungu	Sole Proprietor	Commerce					Interest but no experience	Not identified	Not identified	
204	Umoja	Kongolo		Commerce					Interest but no experience	Not identified	Not identified	
205	UNIPAZA	Kasonga-Lunda	Non-Profit	Agriculture		✓			Interest but no experience	85	8	
206	Uyinduvale	Masi-Manimba	Sole Proprietor	Construction	✓	✓	✓	✓	Self-financed	92	Not identified	1
207	Vemajco	Bulungu, Masi-M., Gungu		Construction					Interest but no experience	Not identified	Not identified	
208	Zabi-Zabi	Idiofa	Sole Proprietor	Agriculture					Interest but no experience	Not identified	Not identified	
209	Zaitchim	Kanama	Sole Proprietor	Commerce	✓	✓	✓	✓	SNRDA	535	Not identified	2
210	Zanglo	Kahemba	Sole Proprietor	Commerce	✓	✓	✓	✓	SNRDA	120	Not identified	2
211	ZUNA	Bulungu	Corporation	Commerce	✓	✓	✓	✓	Other gov't organization	555	Not identified	5

Table I.E. Addresses, Organizations with a local econ. interest in road maintenance

	Full Organization Name	HQ Address	HQ P.O.	HQ Location	Field Address	Field P.O.	Field Location	Telephone
1	Agri Kumataka		B. P. 157	Kongolo	-	B. P. 157	Kongolo	✓
2	AKD	Av. Kasavubu no. 305	B. P. 2785	Lubumbashi	-	B. P. 2785	Lubumbashi	✓
3	Amani Renove		B. P. 273	Kongolo	-	B. P. 273	Kongolo	✓
4	AMS		B. P. 1098	Kinshasa I	✓	Av. Likasi no. 72, Lokolela	B. P. 130	Kikwit
5	Ets. Anstern-Ezung		B. P. 57	Idiofa	-	B. P. 57	Idiofa	✓
6	ARTECO	3 Rte. Kimwenza, Mont Ngafula	B. P. 9541	Kinshasa I	✓	Av. Masamba no. 3	B. P. 200	Kikwit
7	Alatala Anipap	Rue Ngina no. 38, Lemba	B. P. 15466	Kinshasa I	✓	Laba Makingi	B. P. 2199	Kinshasa I
8	AUTOZA	Av. Colonel Ebya no. 1060	B. P. 15554	Kinshasa I	✓	17, Avenue Likasi	B. P. 16252	Kinshasa I
9	AUXELTRA-BETON	292, Av. de la Justice	B. P. 2199	Kinshasa I	✓	292, Av. de la Justice	B. P. 16252	Kinshasa I
10	AZCB ASBL		B. P. 16252	Kinshasa I	✓	Bier via Mateko	B. P. 16252	Kinshasa I
11	Bal-Mayel Murbal	Palais de la Nation	B. P. 3955	Kinshasa I	✓	Nioki	B. P. 445	Bandundu
12	Ets. Bama		B. P. 556	Kin. Limete	✓	Masi-Manimba	B. P. 445	Bandundu
13	Ferme Banus & Fils	Village Mambenzi, Kinzenzengo	B. P. 445	Bandundu	-	209 Av. Bakali, Zone Mayoyo	B. P. 445	Bandundu
14	Ets. Banda Molende	209 Av. Bakali, Z. Mayoyo	B. P. 14651	Kinshasa I	✓	1ere Rue Funa no. 9534	B. P. 445	Bandundu
15	Baseho & Cie		B. P. 621	Kinshasa I	✓	Lunkuni	B. P. 445	Bandundu
16	BAT/Lunkuni SPRL		B. P. 15466	Kinshasa I	✓		B. P. 445	Bandundu
17	BATEC	Rue Ngina no. 38, Lemba 9	B. P. 15466	Kinshasa I	✓		B. P. 445	Bandundu
18	Ets. Belle-Vue	Av. Loso no. 8, Quartier Kabangu	B. P. 37	Bulungu	-	Av. Loso no. 8, Quartier Kabangu	B. P. 37	Bulungu
19	Ets. Bieye Mafuta	Av. Kasai no. 17	B. P. 17	Idiofa	-	Av. Kasai no. 17	B. P. 17	Idiofa
20	Ets. Bitshi Ingombe		B. P. 1504	Kin. Gombe	✓		B. P. 17	Idiofa
21	Ets. Bokoli	Rue Lokele no. 4	B. P. 12822	Kinsh. - Gombe	✓	Dibaya-Lubwe s/Kasai	B. P. 17	Idiofa
22	Ets. Bongibo SPRL	Av. Kasa-Yubu no. 2/8	B. P. 1282	Kinsh. - Limete	✓	Plantation Ibaku, Tolo	B. P. 26	Oshwe
23	Bonkui SPRL	42 Av. des Forgerons, Q. Funa	B. P. 26	Oshwe	-		B. P. 42	Idiofa
24	Ets. Bosama & Fils		B. P. 42	Idiofa	-		B. P. 166	Kongolo
25	Bouryaba		B. P. 166	Kongolo	-		B. P. 166	Kongolo
26	Brigade Agri-Artisan.		B. P. 13077	Kinshasa I	✓	Ferme CAK, Kumina, Kipuku	B. P. 7909	Kin. Kimbeseke
27	Ets. Bumpay	Av. Ngina no. 100, Lemba IX	B. P. 7909	Kin. Kimbeseke	✓	Av. Ndjoku no. 26	B. P. 7909	Kin. Kimbeseke
28	CADESCO	Av. Ndjoku no. 26	B. P. 9347	Kinshasa I	✓	Place commerciale Nina, Tolo	B. P. 66	Kikwit
29	CADULAC	2272 Av. du Flambeau/Ndolo	B. P. 11346	Kinshasa I	✓		B. P. 1837	Likasi
30	CAICO/Punza SPRL		B. P. 1837	Likasi	-	Av. Kaponda no. 3	B. P. 62	Kolwezi
31	Carriere Kisanga	Av. Kaponda no. 3	B. P. 62	Kolwezi	-	Av. Kajama no. 153	B. P. 8	Idiofa
32	CBI	Av. Kajama no. 153	B. P. 86	Kinshasa I	✓		B. P. 14196	Kinshasa I
33	CCB SPRL		B. P. 14196	Kinsh. - Gombe	✓	Av. Ebya no. 2087/2, Zone Gombe	B. P. 327	Kinshasa XXIII
34	CEA	Av. Ebya no. 2087/2	B. P. 327	Kinshasa XXIII	✓		B. P. 609	Lubumbashi
35	CEADER		B. P. 609	Lubumbashi	-		B. P. 43	Idiofa
36	CEDECOM		B. P. 43	Idiofa	-	Lavungu no. 1, Centre Commercial	B. P. 541	Lubumbashi
37	CEKO	Lavungu no. 1, Centre Commercial	B. P. 1455	Lubumbashi	-		B. P. 6	Bulungu
38	CMS-SAEZA		B. P. 6	Bulungu	-	Av. Bala-Bala no. 43	B. P. 13	Kabongo
39	CODAL Lunungu		B. P. 13	Kabongo	-	Secteur de Banga	B. P. 13	Kabongo
40	Collectivite de Banga	Secteur de Banga	B. P. 13	Kabongo	-		B. P. 1	Kapanga
41	Collectivite Kabongo		B. P. 1	Kapanga	-		B. P. 236	Kongolo
42	Muktemuni Iyolo	Chef de collectivite secteur Kapia	B. P. 236	Kongolo	-		B. P. 2297	Kinshasa I
43	Collectivite Mateko	Matar, Collectivite Mateko	B. P. 2297	Kinshasa I	✓	COMUELE-RIZBAND, O. Chinois	B. P. 270	Kinshasa I
44	Collectivite Mwat-Yav		B. P. 270	Kinshasa I	✓	Mikwi	B. P. 38	Kasai
45	Comite du Develop.		B. P. 38	Kasai	-	Localite Yav c/o Mission Cathol.	B. P. 38	Kasai
46	COMUELE	24 Imm. IMMOAF, Biv. 30 Juin	B. P. 4337	Lubumbashi	-	Localite Ndul	B. P. 21	Moba
47	COOPEMI		B. P. 20799	Kinshasa I	✓		B. P. 20799	Kinshasa I
48	Coop. Agr. de Kasaji	Localite Yav c/o Mission Cathol.	B. P. 231	Kinshasa I	✓	Av. Victoire no. 76-78	B. P. 231	Kinsh. - Kasavubu
49	Cooperative de Ndul	Rue Samu no. 7, Kimpwanza	B. P. 30	Bulungu	-	Localite Kimwanza	B. P. 30	Bulungu
50	Coop. Agr. Marungu		B. P. 510	Likasi	-	Route Lubumbashi no. 83	B. P. 510	Likasi
51	CORETI		B. P. 829	Lubumbashi	-	Av. Industrielle no. 120	B. P. 829	Lubumbashi
52	CPSAC SPRL	Kipwanza 76 Av. Victoire, Kasavubu	B. P. 510	Likasi	-	Route Lubumbashi no. 83	B. P. 510	Likasi
53	DAEP/Kwili		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
54	DAGRIM	Route Lubumbashi no. 83	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
55	Domaine Kiankwadi	Av. Industrielle no. 120	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
56	Dev. Rur. Integre KML	Av. Circulaire no. 36	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
57	Diocese d'Idiofa		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
58	Ebangobila	20bis Av. Makaria, Yolo-Sud	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
59	ECZ Mawanga		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
60	ECZ/CPZ		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
61	Eglise Ev. S./SELEC		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
62	EIC SPRL	Av. des Chantiers no. 32	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
63	Ets. Ele Mikwampaka	Centre Commercial no. 72	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
64	Ets. ELOBA		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
65	Epeba Mamba	11bis Rue Paka, Q. Etudiants IPH	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
66	ESTAGRIOD		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
67	FEARDE		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
68	FERMIAMI	13 Av. Ndombasi, Q. Gombela	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
69	Ferme Katikula	Rue S no. 16, Katuba Kananga	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
70	Ferme Segalis	Rue II no. 39B, Q. Mampala, Kenya	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
71	Ste. Fernandes & Cie.		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
72	Forrest	Av. Kigoma no. 22	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
73	GAPAK SPRL	Galerie Pumbu Seme Etage no. 3	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
74	GECAMINES Devel.	Bat. Solbena, Coin Lomami-Moero	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
75	Groupe Fallay		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
76	Groupe Kibwe		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
77	Groupe Masudi		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
78	Groupe Muganga		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
79	Groupe Munungu		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
80	Groupe N.N.M		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
81	Groukat-Azaci		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
82	Gusema Gudulengi	101 Av. Ndambu, Q. Mateba	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
83	HPK HUILMAT	574 Av. des Tropiques	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
84	HSK SPRL		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
85	Huilerie de Yelenge	Av. Likasi no. 8/A	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
86	Ibeka & Fils	40 Av. Lukala, Punda, Binza-Del	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
87	Ets. IBOLO	Av. Mayelamene no. 1	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
88	Ets. Ibwe	Av. Sundi no. 18	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
89	Interwood SPRL		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
90	IRIZ Manono		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
91	Ets. Isu Nka	Av. Wenge no. 3	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
92	Itutu Mbwisi	Av. Lunlungu no. 34	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
93	JVL-SIEFAC		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
94	Kabemba Maloba		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
95	Kabemba Talaja		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
96	KAGA	Av. Moero no. 52	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
97	Kakasa Lukumplele	19 Muzongo, Q. Muyombo	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
98	Kakwala Encoka	Av. Kamina no. 617	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
99	Kalema Makola	70 Av. Bosobolo/Kin-Kasavubu	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
100	Ets. Kalu & Fils		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
101	Kamwanga Ilunga		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
102	Ets. Kanus		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
103	Kapend Tshimpotoy		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
104	Kapiten Lavung	Ave. Lavung no. 3	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
105	Kasanza Kakoy		B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi
106	Kiketa Ngima	Av. Kilidja no. 2695/Kin Lemba	B. P. 829	Lubumbashi	-	Localite Mukanga, Coll. Kayumba	B. P. 829	Lubumbashi

Table I.E. Addresses, Organizations with a local econ. interest in road maintenance

Kinshasa Office										Field Office	
Full Organization Name	HQ Address	HQ P.O.	HQ Location	Field Address	Field P.O.	Field Location	Telephone				
107 Ets. Kimbondja	Av. Zongo no. 126 Lokolela	B. P. 214	Kikwit	- Usines Kasonga, Kazamba/Gungu	B. P. 214	Kikwit	✓				
108 Kishwe Maya	75 rue Lubudi, Babylon, Kintambo		Kinsh.-Kintamb	✓ Centre Commercial		Bagata	✓				
109 Kisimba Mbele & Fils	Rue Munema no. 19, Kenya	B. P. 1586	Lubumbashi	- Rue Munema no. 19, Kenya	B. P. 1586	Lubumbashi	✓				
110 Ets. Kisisimba Omari		B. P. 100	Kongolo	-	B. P. 100	Kongolo	✓				
111 Ets. Kompende	E12 Av. Gén. Ikuku/Lemba-Gomb.	B. P. 204	Kinshasa XI	✓ E12 Av. Gen. Ikuku/Lemba-Gomb.	B. P. 204	Kinshasa XI	-				
112 Lendor International	Av. Kitona no. 4/Kin Gombe	B. P. 31378	Lusaka/Zamb.	- c/o CMS	B. P. 1455	Lubumbashi	✓	3136			
113 Lengelo SPRL	Av. Kitona no. 4/Kin Gombe	B. P. 1586	Kinshasa I	✓ 4 Av. Kitona/Kin Gombe	B. P. 1586	Kinshasa I	-				
114 Limelou	44 Av. la Clinique/Z.Lukolela	B. P. 146	Kikwit	- 44 Av. la Clinique/Z.Lukolela	B. P. 146	Kikwit	✓				
115 Ets. Lozo	Bld. Mobutu no. 142	B. P. 253	Kikwit	- Bld. Mobutu no. 142	B. P. 253	Kikwit	✓				
116 Lumbu Useni		B. P. 231	Kongolo	-	B. P. 231	Kongolo	✓				
117 Luminaza	2 Avenue Niemba/Q. Kandolo	B. P. 6	Kongolo	- 2 Avenue Niemba/Q. Kandolo	B. P. 6	Kongolo	✓				
118 Ets. Luza	13 Rue Tombe, Quartier 7, Ndjili	B. P. 1	Kinsh.-XX	✓ 13 Rue Tombe, Quartier 7, Ndjili	B. P. 1	Kinsh.-XX	-				
119 Ma N'Gwalu SPRL		B. P. 3767	Kinshasa I	✓ Av. de la Mission no. 98/3	B. P. 308	Bandundu	✓	216 (Bdd)			
120 MABEKA ZAIRE	Rue Kidinda no. 150		Kins.-Selemba	✓ Kizenga		Masi-Manimba	✓				
121 Maruta Sala-Wey	Av. Zaire no. 21		Bulungu	- Av. Zaire no. 21		Bulungu	✓				
122 Maieb Majeke SPRL	8261 Av. Ental-Zaire, Salongo ONL	B. P. 15682	Kinsh.-Lemba	✓ Hotel Anki, rue Luie		Bandundu	✓	78712			
123 Maison Luthom	Quart. O.N.I no. 14/Kenge I	B. P. 10175	Kinshasa I	✓ Quartier ONL no. 4		Kenge	✓				
124 Mali Ya Buloto		B. P. 15	Kongolo	-	B. P. 15	Kongolo	✓				
125 Mambiki & Fils	12 Centre Commercial Kolokoso		Kenge	- 12 Centre Commercial/Kolokoso		Kenge	✓				
126 Manzanza & Fils	Centre Comm. /Kinguizi/Lufuna		Kinguizi	- Centre Comm. /Kinguizi/Lufuna		Masimanimba	✓				
127 Matete	Av. Kawewe No. 9, Zone Manika	B. P. 79	Kolwezi	- Av. Kawewe No. 9/Zone Manika	B. P. 79	Kolwezi	✓				
128 Matu Be-Endi Nki	Av. Kimbangi no. 6 Q.8/Ndjili	B. P. 284	Kin/Ndjili	✓ Av. Kimbangi no. 6 Q.8/Ndjili	B. P. 284	Kinshasa/Ndjili	-				
129 Ets. Mbongo-Mpasi		B. P. 76	Kinsh.-Limete	✓ Masanuna, Kinzenga		Masi-Manimba	✓				
130 Mbuku Nuni	162, av. Kulumba, Bumba	B. P. 5526	Kinsh.-Gombe	✓ 162, av. Kulumba, Zone Bumba	B. P. 5526	Kinshasa I	-				
131 Paroisse Christ Roi		B. P. 11	Kabongo	-	B. P. 11	Kabongo	✓				
132 Mission Cath. Kasaji		B. P. 38	Kasaji	-	B. P. 38	Kasaji	✓				
133 Mission Cath. Sandoa		B. P. 20	Sandoa	-	B. P. 20	Sandoa	✓				
134 Maurice Delens Zaire	Av. Bobozo no. 3555 Kingabwa	B. P. 8800	Kinshasa I	✓ 3555 Av. Bobozo, Kingabwa	B. P. 8800	Kinshasa I	-	77967/978			
135 Meclamo	Av. De Mangleurs, Zone Dilala		Kolwezi	- Av. De Mangleurs/Zone Dilala		Kolwezi	✓				
136 Mindange Mugebia	Av. Mubwa no. 18	B. P. 29	Bulungu	- Av. Mubwa no. 18	B. P. 29	Bulungu	✓				
137 Ets. MIM		B. P. 99	Kongolo	-	B. P. 99	Kongolo	✓				
138 MIM & Fils	1242 Blvd. Lumumba	B. P. 7268	Lubumbashi	- Av. President Mobutu No. 26	B. P. 7268	Lubumbashi	✓	2532			
139 Mombembe		B. P. 380	Bandundu	-	B. P. 380	Bandundu	✓				
140 Mputu Mbwe	Bld. Lumumba no. 18		Kinsh.-Masina	✓ Bld. Lumumba no. 18		Kinsh.-Masina	-				
141 Mputu Wa Mputu	Quartier Ongulamba	B. P. 49	Idiofa	- Quartier Ongulamba	B. P. 49	Idiofa	✓				
142 Ets. Mputu Nkanga	Rue Kitona no. 26, Lemba/Righini	B. P. 15540	Kinshasa I	✓ Av. de l'Eglise no. 3		Inongo	✓	77616			
143 Ets. Mudimu	Rue de Tombe no. 15, Quartier 7		Kinsh.-Ndjili	✓ Hotel Nse, Mangal		Idiofa	✓				
144 Mulele Amine	Quartier Commercial	B. P. 55	Kabalo	- Quartier Commercial	B. P. 55	Kabalo	✓				
145 Mumba Mwamba		B. P. 57	Kolwezi	-	B. P. 57	Kolwezi	✓				
146 Mungela Mukoy	Collectivite Yassa Lokwa		Idiofa	- Collectivite Yassa Lokwa		Idiofa	✓				
147 Musay Kavuka & Fils		B. P. 4280	Kinshasa II	✓ Centre Commercial, no. 50 et 51	B. P. 21	Kenge I	✓				
148 Muyumba Mutebezi		B. P. 2014	Lubumbashi	-		Kongolo	✓	4985			
149 Ets. Muzinga Limputu	Rue Ombali no. 24, Quartier 12		Kinsh.-Ndjili	✓ Lotissement Nord no. 229, Basoko		Bandundu	✓				
150 Ets. Mwaku Yala	Av. Bobozo no. 24, Q. Sans Fil		Kinsh.-Masina	✓ Cite de Panzi		Kasonga-Lunda	✓				
151 Mwalejima Kampew	Centre Commercial Kahemba	B. P. 42	Kikwit	- Centre Commercial Kahemba	B. P. 42	Kikwit	✓				
152 Ndingo		B. P. 2940	Lubumbashi	- Av. Savonnier 2234/Zon. Kapemba	B. P. 1020	Kolwezi	✓	223394			
153 Nepa Kitungwa		B. P. 230	Kongolo	-	B. P. 230	Kongolo	✓				
154 Ngunda Kapidi	Localite Mungulunga, Col. Mutanda		Dilolo	- Localite Mungulunga, Col. Mutanda		Dilolo	✓				
155 Nki Bibwi	Bld Lumumba no. 4		Kenge	- Bld Lumumba no. 4		Kenge	✓				
156 Nkita-Zaire SPRL	34/62 Blvd. Lumumba, Q. II, Masina	B. P. 285	Kinshasa I	✓ Mwela-Lembwa		Feshi	✓				
157 NMK		B. P. 107	Kongolo	- Collectivite Bena Niembo		Kongolo	✓				
158 Nsankien	Av. Cadeza no. 30		Idiofa	- Av. Cadeza no. 30		Idiofa	✓				
159 Ets. Nunga-Lubeye	11 Av. de la Cabine, Lukolela	B. P. 296	Kikwit	- 11 Av. de la Cabine, Lukolela	B. P. 296	Kikwit	✓				
160 Nyembo Songa	Av. Matadi No. 12	B. P. 107	Kongolo	- Av. Matadi No. 12	B. P. 107	Kongolo	✓				
161 Ets. Nzawa-Sunga	Centre Commercial no. 11	B. P. 29	Popokabaka	- Centre Commercial no. 11		Popokabaka	✓				
162 Nzundu Kapita	Av. Nsay no. 213, Zone Nzinda	B. P. 79	Kikwit	- Av. Nsay no. 213, Zone Nzinda	B. P. 79	Kikwit	✓				
163 PAK ASBL	25 Av. Lundisa/Q.Bangu/Delvaux	B. P. 1349	Kinshasa I	✓		Kenge	✓				
164 Ets. Pakhe & Fils	Quartier Ngufu no. 15/C		Kinsh.-Matete	✓ Centre Commercial Bulungu		Bulungu	✓				
165 Paroisse Budi			Kabono	-		Kabongo	✓				
166 Paroisse Yasa		B. P. 7245	Kinshasa I	✓	B. P. 254	Kikwit	✓				
167 PDK ASBL		B. P. 14030	Kinshasa I	✓ Sumba, Kasongo-Lunda		Kasongo-Lunda	✓				
168 Pokiale SPRL	743 Av. du Marché/Kin Gombe	B. P. 16649	Kinshasa I	- 743 Av. du Marché/Kin Gombe	B. P. 16649	Kinshasa I	-				
169 PRODECAT		B. P. 5230	Kinshasa 10	✓ Centre Apicole de Tshiwala		Kahemba	✓				
170 Projet Viet et Sante		B. P. 11248	Kinshasa I	✓ Kitenda		Kasongo-Lunda	✓				
171 RAK	7 Av. Masitu, Quartier Salongo	B. P. 1456	Kinsh.-Limete	✓ Av. Masitu no. 7, Q. Salongo, Limete	B. P. 1456	Kinshasa I	-				
172 SAC	15 Av. de l'Industrie, Ndolo	B. P. 8702	Kinshasa I	✓ Av. de l'Eglise no. 126		Bandundu	✓	23363			
173 SAFRICAS	14 Av. Sergeant Moke, Z. Ngaliema		Kinshasa	✓ 14 Av. Sergeant Moke, Z. Ngaliema		Kinshasa	-				
174 Sambumba	Av. Manguers no. 130-138, Dilala	B. P. 200	Kolwezi	- Av. Manguers no. 130-138, Dilala	B. P. 200	Kolwezi	✓	2441			
175 Sampedro Freres	842 Av. du Marche, Gombe	B. P. 3504	Kinshasa I	✓ Localite Mayamba, Coll. Kisunzu		Gungu	✓				
176 Sange Mfumukento		B. P. 235	Bandundu	- Elevage de la Kayenka		Bagata	✓				
177 Societe Sanga-Sam	Av. Sanzu no. 42		Kinsh.-Makala	✓	B. P. 25	Idiofa	✓				
178 Sappe	Av. Lubudi no. 348		Kolwezi	- Av. Kamina no. 640		Kolwezi	✓				
179 Societe SICA SPRL	Av. du Commerce no. 35	B. P. 754	Kinshasa I	✓ Kisa		Bulungu	✓	22701/343			
180 Simwa	Av. Kolwezi no. 87, Zone Kenya		Lubumbashi	- c/o CPZ, Mwanza Sope	B. P. 18	Malamba Nkulu	✓				
181 SOCOA	Av. du Commerce no. 68, Gombe	B. P. 12630	Kinshasa I	✓ Ferme Lengha Lengha, Kwamouth		Bolobo	✓	23659			
182 SOCOBU	Av. Rutshuru no. 9/Q. Potopoto	B. P. 38	Bulungu	- Av. Rutshuru no. 9/Q. Potopoto	B. P. 38	Bulungu	✓				
183 SOGELEM SPRL	Av. Principale no. 9, Q. Salongo	B. P. 292	Matadi	- Av. Principale no. 9, Q. Salongo	B. P. 292	Matadi	✓				
184 Soleil Couchant	Av. Nsele no. 12	B. P. 192	Kikwit	- Av. Nsele no. 12	B. P. 192	Kikwit	✓				
185 SOZACOT SPRL	Av. Salongo no. 23, Zone Manika	B. P. 703	Kolwezi	- Av. Salongo no. 23, Zone Manika	B. P. 703	Kolwezi	✓	2866			
186 SOZAGEC	4718, Av. 24 Novembre, Gombe	B. P. 7921	Kinshasa I	✓ 4718, Av. 24 Novembre, Gombe	B. P. 7921	Kinshasa I	-	31698/976			
187 Success Ya Zondo	Av. du Zaire no. 37	B. P. 208	Kongolo	- Av. du Zaire no. 37	B. P. 208	Kongolo	✓				
188 Sulka	Av. Bayeke no. 197, Kamalondo	B. P. 3484	Lubumbashi	- Av. Bayeke no. 197, Kamalondo	B. P. 3484	Lubumbashi	✓	3597/5373			
189 Swanepoel	Av. de l'Abattoir no. 42	B. P. 88	Likasi	- Av. de l'Abattoir no. 42	B. P. 88	Likasi	✓	537			
190 Tabesengo Muwaba	170 Av. Mbe/Kinshasa-Ngaba	B. P. 20418	Kin/Lemba	✓ 170 Av. Mbe/Kinshasa-Ngaba	B. P. 20418	Kin/Lemba	-				
191 Tambwe Hana		B. P. 33	Nyundu	-	B. P. 33	Nyundu	✓				
192 Tambwe Tshikwand	Av. du 24 Nov. no. 94	B. P. 22	Dilolo	- Av. du 24 Nov. no. 94	B. P. 22	Dilolo	✓				
193 Ets. Thoms Bi-Yam	Localite Ndana, Coll. Manzasay		Bagata	- Localite Ndana, Coll. Manzasay		Bagata	✓				
194 Ets. Toko Wangata		B. P. 234	Bandundu	-	B. P. 234	Bandundu	✓				
195 Ets. Tomanko Zaire		B. P. 445	Bandundu	- Av. Bokoro no. 35		Mushie	✓				
196 Ets. Tosangana	Rue Kimba no. 49		Kinsh.-Limete	✓ Av. Wamba 5268		Kinsh.-Limete	-				
197 Tout depend de Dieu	Bld Lumumba no. 16/Kenge I		Kenge I	- Bld Lumumba no. 16/Kenge I		Kenge I	-				
198 Trans Kwango SPRL	Bld Lumumba Parc 974/Kin-Masina	B. P. 12343	Kinshasa	✓ Bld Lumumba Parc 974/Kin-Masina	B. P. 12343	Kinshasa	-				
199 TRAVAS SPRL	Galeries presidentielles Seme	B. P. 13692	Kinshasa I	✓ Lukengo Bikala, Blvd. Lumumba		Kenge I	✓	22908			
200 Tshete Sakapumba		B. P. 61	Dilolo	-	B. P. 61	Dilolo	✓				
201 Tshifaneken		B. P. 122	Kasaji	-	B. P. 122	Kasaji	✓				
202 Twende Mbele	Chez Tambwe Mugebe	B. P. 155	Kongolo	- Chez Tambwe Mugebe	B. P. 155	Kongolo	✓				
203 UGZ	Av. Lukengo II no. 2/Z. Lukolela	B. P. 139	Kikwit	- Av. Lukengo II no. 2/Z. Lukolela	B. P. 139	Kikwit	✓				
204 Umoja		B. P. 155	Kongolo	-	B. P. 155	Kongolo	✓				
205 UNIPAZA	Av. Bateke no. 52, Disasi	B. P. 279	Bandundu	- Av. Bateke no. 52, Disasi	B. P. 279	Bandundu	✓				
206 Ets. Uyinduyala	Bld. Lumumba no. 36		Masi-Manimba	- Bld. Lumumba no. 36		Masi-Manimba	✓				
207 Ets. Vemajico	9 Av. Mavanga/Q. 8 Kin-Ndjili	B. P. 503	Kinshasa 23	✓ Av. Mavanga no. 9/Q. 8 Kin-Ndjili	B. P. 503	Kinshasa 23	-				
208 Zabi-Zabi		B. P. 5	Idiofa	-	B. P. 5	Idiofa	✓				
209 Zaitchim		B. P. 2054	Lubumbashi	- Av. des Chimiques no. 46	B. P. 145	Kaniama	✓				
210 Ets. Zangio Kampew	Av. Zongo no. 610	B. P. 42	Kikwit	- Av. Mwashipu no. 42		Kahemba	✓				
211 Ets. ZUNA	Av. du Commerce no. 13	B. P. 232	Kikwit	- Av. du Commerce no. 13	B. P. 232	Kikwit	✓				

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		Social		Security	Hangers		Garages		Large trucks		Pickups	Tilt trucks		Cement mixer	Pneum. compact.										
	Short Name	Employ	Offices		Stores	Tool shops	Cars	4 x 4 jeeps	Tractors	Graders	Water truck	Bulldozer	Mech.	Vibr. compact	Shov. tra	Equipment for Manual Work									
1	Agri Kumutaka	96	-	1	1	1	0	0	0	0	0	0	0	0	0	1	machet, pel, hach, houes, brouet, 8 velos etc.								
2	AKD	42	-	1	1	1	3	1	0	0	1	0	0	0	0	0	Houes, pelles, pioches, brouettes								
3	Amani Renove	15	✓	1	1	0	1	0	0	0	0	0	0	0	0	0	5 velos, 2 motos, hach, coup, pel, 50 mach,								
4	AMS	185	✓	1	1	0	3	0	3	0	1	0	0	0	0	0	pell, mach, hou, hach, brouettes								
5	Ansiem-Ezung	17	✓	2	1	0	6	0	0	3	1	0	0	0	0	0	32 mach, 25 hach, 15 hou, 12 coup								
6	ARTECO	52	-	1	1	0	0	2	0	2	0	1	0	0	0	0	Moto-pomp, gr. elec, pell, bech, 12 brou, etc.								
7	Atatale Ani pep	115	✓	1	1	0	1	0	1	0	0	0	0	0	0	0	240 mach, 50 bech, 50 pell, 10 hach								
8	AUTOZA	170	-	1	1	1	3	0	0	0	3	0	1	0	0	0	pell, coup, hou, mach, hach, scies, velos								
9	AUXELTRA	2500	✓	10	10	0	2	0	0	0	0	0	0	0	0	0	non identifie								
10	AZCB ASBL	45	-	1	1	0	1	0	0	0	1	0	0	1	0	0	Dumper, motopompe, gr. electr., velos, soud.								
11	Bai-Mayel	6	-	1	1	0	0	0	0	0	0	0	0	0	0	0	Machettes, houes, pelless, beches								
12	Bama	30	✓	1	1	0	0	2	0	0	0	0	0	0	0	0	20 pel, 25 mach, 5 hach, 5 pioch, 2 brou,								
13	Bomus & Fils	6	-	1	0	0	0	0	0	0	0	0	0	0	0	0	non identifie								
14	Banda	2	-	0	0	0	0	0	0	0	0	0	0	0	0	0	5 mach, 3 rateaux, 5 hou, 3 bech, 2 pioc, 3 hach								
15	Baseho & Cie	30	✓	1	1	1	1	0	0	0	0	0	1	1	1	1	Tronconneuse, scie elec, soud, truel, pell, mach								
16	BAT/Lunkuni	950	✓	1	17	1	4	1	0	3	3	0	0	0	0	0	non identifie								
17	BATEC		-	0	0	0	0	0	0	0	0	0	0	0	0	0									
18	Belle-Yue	5	-	1	0	1	0	0	0	0	0	0	0	0	0	0	velo, 20 houes, 30 pelles, 20 machettes								
19	Bieye Mafute		-	0	0	0	0	0	0	0	0	0	0	0	0	0									
20	Bitshi Ingombe	60	-	1	3	0	1	0	4	0	2	0	0	0	0	0	machettes, pelles, copu, scie, hach, pioc, brou								
21	Bokoli		-	0	0	0	0	0	0	0	0	0	0	0	0	0									
22	Bongibo	157	✓	1	1	1	0	0	0	4	2	0	0	0	0	0	non identifie								
23	Bonkul SPRL	12	✓	2	2	0	0	0	1	0	1	1	0	0	0	0	2 balenieres, scierie, soudure, pell, mach, etc...								
24	Bosama	28	-	0	0	1	0	0	0	0	0	0	0	0	0	0	250 houes, 30 machettes, 30 coupe-coupes								
25	Bouryaba		-	0	0	0	0	0	0	0	0	0	0	0	0	0									
26	Brig Agri-Artis.		-	0	0	0	0	0	0	0	0	0	0	0	0	0									
27	Bumpyay	11	-	0	1	0	1	0	0	0	0	0	0	0	0	0	20 pell, 20 bech, 35 mach, 2 scie, 10 hach								
28	CADESCO		-	0	0	0	0	0	0	0	0	0	0	0	0	0									
29	CADULAC	5	✓	1	1	0	0	0	0	1	0	0	0	0	0	0	pelles, brouettes, truelles, scaoux, mat. topogr.								
30	CAICO/Punza	80	✓	5	2	1	0	0	3	1	0	0	0	0	0	0	mach, pell, coupe, hach, hou, pices, pioch								
31	Carrii. Kisanga	17	-	1	1	0	0	0	2	0	0	0	4	0	0	0	20 pell, 20 pioc, 20 fourches, 10 brou, 20 wagon								
32	CBI	10	✓	1	1	0	0	0	0	0	0	0	0	0	0	0	Pioches, pelles								
33	CCB SPRL	167	✓	8	6	2	6	3	3	0	0	0	0	0	0	0	300 mach, 300 coup, 106 hou, 300 pelles cant.								
34	CEA	75	✓	1	1	1	1	0	0	2	1	0	2	0	0	0	tronconneuse								
35	CEADER		-	0	0	0	0	0	0	0	0	0	0	0	0	0									
36	CEDECOM		-	0	0	0	0	0	0	0	0	0	0	0	0	0									
37	CEKO	20	✓	1	1	1	7	0	0	1	0	0	0	0	0	0	pell, hach, bech, hou, mach, pioch, ficelles								
38	CMS-SAEZA	150	✓	2	3	3	0	1	0	4	5	0	6	2	0	5	Materiel suivant contrat, le necessaire								
39	CODAL	77	✓	5	2	0	0	0	0	0	0	0	0	0	0	0	62 hou, 74 mach, 11 hach, 20 pell, 11 brou								
40	Coll. Bange	50	✓	5	3	0	0	0	1	1	0	0	0	0	0	0	bach, hou, pell, mach, hach, rate, brou, chaines								
41	Coll. Kabongo	100	-	1	0	0	0	0	0	0	0	0	0	0	0	0	Velos, pelles, machettes								
42	Coll. Kapia	115	✓	1	1	0	0	0	0	1	0	0	0	0	0	0	20 pell, 30 bech, 100 mach, 20 coup, 20 pioches								
43	Coll. Mateko	85	✓	1	1	0	0	0	0	1	0	0	0	0	0	0	pell, bechs, brou, pioc, haches, damiers, etc								
44	Coll. Mwat-Yav	160	✓	0	0	0	0	0	0	0	0	0	0	0	0	0	houes, mach, pioc								
45	Comite de Dev		-	0	0	0	0	0	0	0	0	0	0	0	0	0									
46	COMUELE	42	✓	1	1	1	0	0	5	0	1	0	0	0	0	0	pell, hou, pioch, etc.								
47	COOPEMI	5	-	0	0	0	0	0	0	0	0	0	0	0	0	0	non identifie								
48	Cooper. Kasaji		-	0	0	0	0	0	0	0	0	0	0	0	0	0									
49	Cooper. Ndul	30	-	1	1	0	0	0	0	0	0	0	0	0	0	0	mach, houes, coupes, hach, pell, pioch, rateaux								
50	COPAM	65	-	1	1	1	1	0	1	0	0	0	0	0	0	0	2 motos, 47 velos, 70 pell, 150 hou, 120 coup								
51	CORETI	350	✓	2	3	3	0	2	3	6	3	0	2	8	3	5	Materiel de battage de pieux								
52	CPSAC SPRL	198	✓	1	1	0	0	0	0	0	0	0	0	0	0	0	pell, mach, bech, hach, vaudrai 200 de chaque								
53	DAEP/Kwilu		-	0	0	0	0	0	0	0	0	0	0	0	0	0									
54	DAGRIM	9	-	1	1	0	0	0	3	4	0	0	1	0	0	0	Houes, pelles, pioches, brouettes, etc...								
55	DAK	62	✓	1	1	1	0	0	1	1	2	0	2	1	0	0	Acces materiel CMS (memes patrons)								
56	Dev. Rur. KML		-	0	0	0	0	0	0	0	0	0	0	0	0	0									
57	Dioc. d'Idiofa	131	✓	8	10	9	0	0	0	0	3	0	0	0	0	0	4 motos vespes								
58	Ebangobila	37	✓	1	1	0	1	0	2	0	1	0	0	0	0	0									
59	ECZ Mawanga		-	0	0	0	0	0	0	0	0	0	0	0	0	0									
60	ECZ/CPZ		-	0	0	0	0	0	0	0	0	0	0	0	0	0									
61	EES/SELEC	320	-	1	1	1	1	3	0	5	2	3	0	0	0	1	pell, pioc, bech, brou, etc.								
62	EIG SPRL	75	✓	2	1	1	0	1	2	3	0	2	1	1	3	0	Materiel pr principalement a KLZ. Ferme LKS								
63	Ele	15	✓	1	1	0	1	0	0	1	1	0	0	0	0	0									
64	ELOBA		-	0	0	0	0	0	0	0	0	0	0	0	0	0									
65	Epaba Mamba	3	-	1	1	1	0	0	0	0	1	0	0	0	0	0	76 bech, 76 pell, 50 hach, 76 mach, 30 brou								
66	ESTAGRICO	335	✓	50	20	20	0	1	7	1	3	0	2	0	0	0	Pell, pioc, brou, mach, hou								
67	FEARDE		-	0	0	0	0	0	0	0	0	0	0	0	0	0									
68	FERMAMI	12	-	0	0	0	0	0	0	0	0	0	0	0	0	0	35 mach, 3 scie long, 30 hou, 10 coup, 6 bech								
69	Ferme Katikula	5	-	0	0	0	0	0	0	0	0	0	0	0	0	0	12 hach, 12 hou, 12 coup, 2 brou, 5 mach, 6 bech								
70	Ferme Sagalis		-	0	0	0	0	0	0	0	0	0	0	0	0	0									
71	Fernandes	280	✓	5	15	1	30	1	34	0	5	1	0	0	2	2	materiel de cantonnement manuel complet								
72	Fornest	714	✓	7	20	20	0	0	1	9	16	6	14	2	7	28	5	6	3	2	4	1	0	1	Experience travail entr. generalement mec.
73	GAPAK SPRL	40	✓	1	1	0	0	0	0	1	0	0	0	0	0	0	0	10 pell, 30 mach, 30 brou, 10 hach, 550 m. cord							
74	GCM Develop.	1965	✓	3	3	3	0	2	40	0	3	6	42	1	8	1	4	0	0	0	11	0	6	Moissonneuses batteuses, outils ferme	
75	Gr. Fallay	111	-	1	1	0	0	0	0	0	0	0	0	0	0	0	0	moto, velos, outils scierie et cant. manuel							
76	Gr. Kibwe	70	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
77	Gr. Masudi		-	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
78	Gr. Muganga	70	-	1	0	1	0	0	0	0	0	0	0	0	0	0	0	moto, 5 velos, 50 pell, 50 coup, 10 mch, 10 hach							
79	Gr. Munung		-	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
80	Gr. NNM		-	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
81	Groukat-Azaci		-	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
82	Gusema	18	✓	2	2	0	7	0	1	0	0	0	0	0	0	0	0	pell, hou, hach, mach, coup, burins, mart, truel							
83	HPK	785	-	3	1	1	1	1	7	0	1	0	1	0	0	0	0	355 pell, 276 mach, 38 hach, 198 coup, soudure							
84	HSK	125	✓	1	1	1	1	1	1	0	0	0	1	0	0	0	0	pell, hach, hou, bech, mach, brou, coup, pioch							
85	Huilleries Yelen.	63	-	1	12	0	3	1	0	2	0	1	0	0	0	0	0	equipement de catonage							
86	Ibeka & Fils	30	✓	2	5	1	1	0	0	0	0	0	0	0	0	0	0	equip. general, macon, charp., entretien OR							
87	IBOLO		-	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
88	IBWE		-	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
89	Interwood	90	✓	1	1	1	0	0	0	0	0	0	0	6	0	0	0	pelles, mach, houes, hach, troncon, tire fort							
90	IRIZ Manono	315	✓	1	1	1	0	0	4	0	7	0	0	0	1	0	0	3 motos, 8 velos, pell, hach, hou, brou							
91	ISU Nka	16	-	1	3	0	1	0	2	0	1	0	0	0	0	0	0	houes, machettes, 2 brouettes							
92	ITUTU Mbwisi		-	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
93	JVL-SIEFAC	368	✓	4	5	5	10	3	6	0	1	0	0	0	1	0	0	210 pell, 200 mach, coup, 135 hou, 10 hach							
94	Kabemba Mal.	36	-	1	1	0	0	0	0	0	0	0	0	0	0	0	0	5 velos, 76 pell, 80 coup, 40 brou, 20 pioc							
95	Kabemba Tal.		-	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
96	KAGA		-	0	0	0																			

Table I.F. Emplov. and Equip., Org's with a local econ. interest

[illegible]

Table I.G. Description, Organizations with a local econ. interest in Road Maintenance

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	Interviewed	Founding date	Size	Description of Activities	Name Executive #1	Title Executive #1	Seniority #1
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Table I.G. Description, Organizations with a local econ. interest in Road Maintenance

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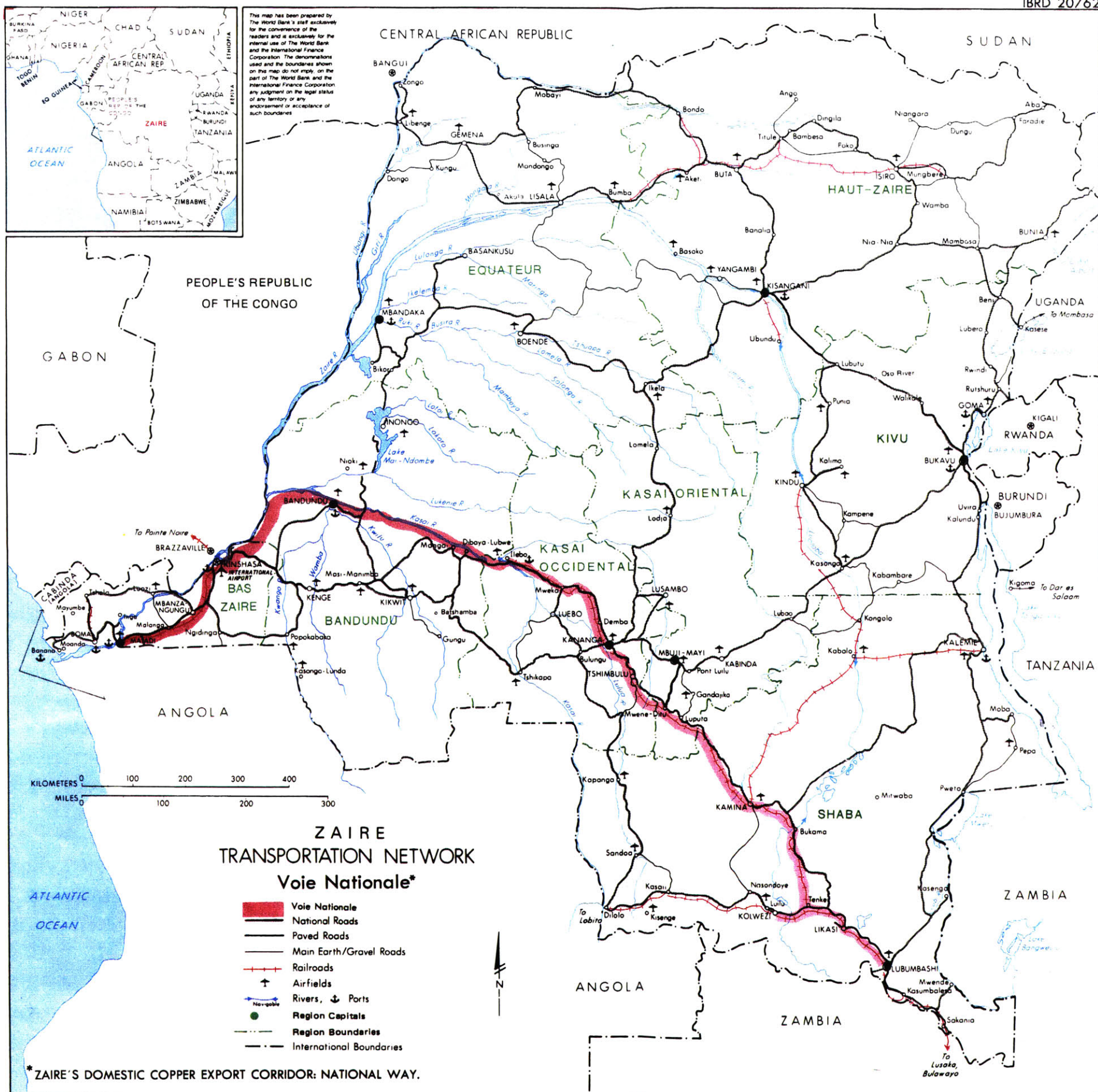
	Interviewed		Founding date		Description of Activities	Name Executive #1	Title Executive #1	Seniority #1
	Short Name	Size	Year	Age				
107	Kimbondia	✓ 62	Medium		Industr. huiliere, elev., comm. gen., entretien OR et soi meme	Kimbondia	Administrateur Proprietaire	26
108	Kishwe	✓ 69	Medium		Comiss. P., pisc., elev. entr. Ponts & Ch. '71, demande pour Peres Sia	Kishwe Moya	Administrateur Gerant	18
109	Kisimba Mbale	✓ 70	Medium		Comm. prod. agr., ferme, constr. immob., entr. rts. Gouvern. 40 Km. '85	Kisimba Mbale	President Proprietaire	18
110	Kissimba	- 78	Medium		Comm. Mais, chaps mais, groupements precooperatifs (Comite Dev)	Kissimba Omari	Directeur	10
111	Kumapende	-						
112	Lendor Int'l Ltd.	✓ 55	Large		Grand projets routiers, ferrov., hydr. Afrique centrale et australe	A. J. Burton	Directeur	
113	Lengelo	-						
114	Limalou	-	Small					
115	Lozo	✓ 82	Medium		Usine huile de palme, comm. prod. ag., fermes et elev., entr. anc. gouv.	Ganzumba Lozo	Administrateur Gerant	6
116	Lumbu Useni	✓ 81	Medium		Comm. prod. agr., mag. articles de traite, entr. SNRDA '88 '89 163 Km.	Lumbu Useni	President	7
117	Luminaza	-						
118	Luza	- 71	Medium		Comm. gen. Bateke, zone Mushie, entr. OR '71-'75	Luenba Nwe Di Nanza	Administrateur Proprietaire	18
119	Ma N'Gwalu	✓ 87	Medium		Commerce gen. agr., hotel, entretien ferme	Ngwalumuna Mbunzu	Administrateur-Proprietaire	2
120	Mabeka	✓ 56	Medium		3 plant. cafe, evacuation et comm. tout prod. ag. fermiers Kinzenga	Ndonbe Kamalandu	Administrateur Directeur (KIN)	
121	Mafula Sala	-	Small					
122	Maieb Majake	✓ 87	Medium		Transp. SOBRABAND, BAT, autres, entr. routes. plant. cafe 50 h. Kutu	Muke Mashiakae	Associe-Gerant	15
123	Maison Luthom	✓ 83	Medium		Plant. et elev., font camp. cafe pour SITREX, petite moulerie manioc	Lukengo Thomby	Administrateur - Proprietaire	8
124	Mali Ya Butoto	✓ 70	Medium		Comm. mais, mag. a ouvert route 15 Km. '82 par cant. manuel	Kalunga Kimba	Proprietaire	18
125	Mambiki & Fils	-	Small					
126	Manzanza	-	Small					
127	Matele	✓						
128	Matu Be-Endi	-						
129	Mbongo	✓ 77	Small		Agriculture, elevage, commerce de detail, entretien leurs routes	Ndundu Madebisa	Administrateur Directeur (KIN)	
130	Mbuku Nuni	- 82	Medium		Plant., elev., construit 5 ponts, entret. 400 Km OR	Mbuku Nuni	Attributeur	6
131	MIC Kabongo	✓ 41	Medium		Evang., ecoles, moulins, experience entr. rts. Tanzanie	Pere Joseph Tenga	Cure de la Paroisse	4
132	MIC Kasaji	-						
133	MIC Sandoe	- 53	Small		entr. rts. OR '77-'87	Pere Francois Waelbers	Missionnaire	
134	MDZ	- 27	Large		Grande entreprise internationale de constr., agences dans tout Zaïre	Van Hauwaert Jacques	Directeur General Gerant	30
135	Meclamo	✓						
136	Mindanga	-	Small					
137	MM	✓						
138	MMK & Fils	✓ 84	Medium		Matiere premiere constr., menus., concess. forrest., entr. 20 Km. ferm.	Mulopo Maweja K.	PDG	5
139	Mombembe	-	Medium					
140	Mputu Mbwe	- 85	Medium		Commerce detail, pharmacie, attrib. OR	Mputu Mbwe	Attributaire OR	3
141	Mputu Mputu	- 79	Small		Commerce prod. agr., prod. pharm., elevage	Mputu Wa Mputu	Proprietaire	9
142	Mputu Nkanga	✓ 64	Medium		Constr. mec. OR 72-79, entr. man. 74-86, deman. veh. pour entr. diffic.	Mpose Mputu Nkanga	Proprietaire Gerante	25
143	Mudimu	✓ 74	Small		Hotel, plantation, pisc., avait contrat entretien route '74	Mudimu Lin lw'Esus	Proprietaire	27
144	Mulala Amine	✓ 63	Medium		Comm. agr., entr. rts. SNRDA 67 Km. '89 + 8 ponts	Mulala Amine	Proprietaire-President	25
145	Mumba	-						
146	Mungala	✓ 70	Medium		Ancien agent territorial pour cantonnement, 3 ponts SNRDA '88	Mungala Mukoy	Chef de collectivite	
147	Musey Kavuka	✓ 56	Medium		Vente articles prem. nec., elev., cafe, mais, manioc, constr. im., OR	Musey Kavuka	President Proprietaire	32
148	Muyumba	-						
149	Muzinga	✓ 70	Small		Elev., ferme Kongo, Mosahgo/Amsi/Masi, BM fin. PM evac. ag. Masi	Muzinga Limputu	Proprietaire	
150	Mwaku Yala	- 78	Medium		Evac. prod. ag., elev., comm. gen., constr. immo., routes ponts OR	Mwaku Yala	Proprietaire (Kinshasa)	10
151	Mwalejima	✓ 79	Medium		Comm. detail, plant. manioc, mais, palm., elev., entretien routes OR	Mwalejima	Administrateur Proprietaire	9
152	Ndinge	-						
153	Nepa	-						
154	Ngunza	-						
155	NKI Bilibi	-	Small					
156	Nkita-Zaire	- 84	Medium		Commerce gen., agr., elev., entr. 380 Km. rts. Dept. Agr. '85	Boba Kiyeka Mwana	PDG	4
157	NFK	- 86	Medium		Activites Chef de collectivite, entr. route coll. 11 millions '88	Niemo Mafuta K.	Chef de Collectivite	
158	Nsankien	-	Medium					
159	Nunga-Lubeye	✓ 79	Small		Transport commercial, entretien routes OR	Nunga Lubeye	Administrateur	9
160	Nyembo Song	-						
161	Nzawa-Sunga	- 78	Medium		Elev., cafe, evac. prod. Kwango, scierie Popo, peche, entretien OR	Tuyaba Lewula	Directeur General	10
162	Nzundu	- 70	Small		Agr., elev., hull. arti., anc. chef s.-reg. TPAT, chef bur. tech. voirie idiof.	Nzundu Kapita	Proprietaire	18
163	PAK ASBL	✓						
164	Pakhe & Fils	✓ 85	Medium		Champs cafe, manioc, arach., elev. USAID, entretien OR	Pakhe Kapuka	President Directeur	3
165	Paroisse Budi	✓ 50	Medium		Proj. agr. traction animale, entr. rts. avant '82 ouvriers mission	Msrgr. Nday	Eveque de Kongolo	
166	Paroisse Yasa	✓ 24	Medium		Apostolat et develop. scol., med., ag., entretien routes paroisse	Mgr Mununu	Superieur	
167	PDK ASBL	✓ 86	Small		Org. ben. constr. batiments pub. materiaux semi-durable, ponts, entret.	Mvumbi Nsatisa	Charge des missions (KIN)	3
168	Poklabe	-						
169	PRODECAT	-	Medium					
170	Projet Vie	- 86	Medium		Sente, hydraulique, elev., pharm., entretien routier	Ibula M. Katakanga	President	2
171	RAK	✓ 70	Medium		Comm. prod. divers, entretien debroussaillie Inga-Shaba depuis '75	D. M. Kabwe	Administrateur Directeur	
172	SAC	✓ 77	Medium		Agr., elev. 9000 tetes, transp. comm., entretien 40 Km propre reseau	Kayinga Osin	A. D. Delege	9
173	SAFRICAS	- 23	Large		Entreprise de constr. gen. internationale, constr. route OR Mwebe	Dequel Henri	Administrateur Dir. General	22
174	Sambumba	✓						
175	Sampedro	✓ 44	Large		Huteries, plant. palm./cafe, elev. 1100 tetes, comm. gen. agr., constr.	Amilcar Dias Sampedro	Directeur General Associe	50
176	Sanga Hfumu.	-	Small					
177	Sanga-Sam	✓ 68	Medium		Comm. prod. ag., plant. cafe, elev., attrib. entretien OR, CODAIK	Sanga Sam	Administrateur Gerant	20
178	Sappe	-						
179	SICA SPRL	✓ 85	Medium		Huil. Kibay, Kisja, Ngongo, plant. palm., mais, caf., constr. ponts, ent. rt.	Mususu B. Namwis	P. D. G.	19
180	Simwa	✓	Medium					
181	SOCOA	✓ 76	Large		SOCOA plant., usine cafe, entr. route, division CORELEC constr. ponts	Col. Lengha Lengha	P. D. G.	10
182	SOCOBU	-	Medium					
183	SOGELM	- 88	Medium		Ag., comm., constr. im., constr. et entretien routes, ponts OR, SNRDA	Mbambi Mbambi Lendo	Coodinateur Principal	1
184	Soleil Couch.	✓ 69	Small		Ing. voirie, hotel, mag., comm. prod. agr., elev., entr. 20 Km propres fra	Mbala Mushikipwa	Chef d'etablissement	20
185	SOZACOT	✓ 85	Medium		Exploit. forestiere, scierie, achat prod. agr., entr. routes soi 95 Km.	Souris Panayotis	Directeur Gerant	
186	SOZAGEC	- 73	Large		Grande entreprise generale de construction, constr. routes OR	Monali Emeka	Administrateur-Delege	16
187	Success Ya	✓ 75	Medium		Agriculture, commerce de detail, bonne connaissance tech. entr. routes	Mukomewa Kibala	P.D.G. des Ets.	14
188	Sulka	✓			S'interesse constr. pots mais pas d'experience			
189	Swanepoel	✓ 56	Large		Travaux entr. mec. routes OC1, OR, SNEL, ferme 250 Ha	Hendrik Swanepoel	Administrateur Delege	1
190	Tabasenge	-						
191	Tambwe Hana	-						
192	Tambwe Tsh	- 67	Medium		Comm. prod. manuf. et agr., elev., entr. rts. OR '74-'75	Tambwe A. Tshikwand	PDG	21
193	Thoms Bi-Yam	- 77	Small		Plant. cafe, entr. benevole routes dans Coll. Manzesay	Tomboka Bi-Yam	Administrateur-Proprietaire	11
194	Toko Wangata	✓ 73	Medium		Elev. bovin., ferme 100 ha., comm. gen. et phar., entretien OR	Toko Wangata	Administrateur Gerant	15
195	Tomanko	- 85	Medium		Plant. 36 ha. cafe, petit commerce de detail, entretien SNRDA	Mankoto Kebala	1er Sec. Assemblee Region.	
196	Tosangena	- 88	Medium		Prof. de philo. Kin., commiss. du peuple, bon attrib. 60 Km SNRDA Kiri	Mbolokala Imbuli	Proprietaire	5
197	Tout depend	✓	Medium					
198	Trans Kwango	-						
199	TRAVAS	✓ 87	Medium		Ouane, imprimerie, plant., elev., evac. prod. agr., ag. Kenge sans veh.	Kimbuta ya Ngo	A. D. G.	3
200	Tshala	- 61	Medium		Comm. gen., entr. rts. OR '84 169 Km.	Tshala Sakapumba	Directeur	
201	Tshifanaken	✓						
202	Twende Mbele	✓ 69	Medium					
203	UGZ	-	Small					
204	Umoja	-						
205	UNIPAZA	✓ 82	Small		Dev. rural integre, commercialisation cereales, reboisement, educat.	Wengesse Mbongo	Directeur regional de projets	6
206	Uyinduyala	✓ 82	Medium		Atelier et ecole mec., mag. techn., ferme, elev., anc. resp. routes HPK	Uyinduyala	PDG	6
207	Vemaipo	-						
208	Zabi-Zabi	-	Small					
209	Zaitchim	- 84	Medium		Comm. detail et prod. agr., entretien SNRDA '88, rehab. pont	Tshivuadi Mukeba	Aministrateur Dir. General	4
210	Zangio	✓ 62	Medium		Agr., comm., 120 Km SNRDA, frere de Mwalejima Kampew	Zangio Kampew	Administrateur-Proprietaire	27
211	ZUNA	- 77	Medium		Depos. BRALIMA, UNIBRA, SBK, comm. det., ag., elev., entr. CODAIK	Zuy Mami Agedi	Administrateur Proprietaire	11

Table I.H. Description, Organizations with a local econ. interest in Road Maintenance

		Seniority #2		Seniority #3		Seniority #4		Seniority #4
	Short Name	Name Executive #2	Title Executive #2	Name Executive #3	Title Executive #3	Name Executive #4	Title Executive #4	
1	Agri Kumutaka	Mibanga Kinda	Directeur	5 Ngoy	Financier	5 Salumu Nyembo	Conducteur de travaux	5
2	AKD	Kafitwa wa Pa Bowa	Administrateur	22 Nday wa Kaembe	Commissaire du Peuple	22 Mwindia Kalevu	Directeur	9
3	Amani Renove	Mwanengoy Subu	Directeur	20 Pungwe Ngongo	Secrétaire	9 Kaponda Ngoy	Gerant	9
4	AMS	Jose Americo	Directeur Gerant	14 Abilio Sobreira	Directeur financier	14		
5	Ansiem-Ezung	Ngelese	Gerant	10 Nshim	Secrétaire	3		
6	ARTECO	Musiteke Mpey	Architecte	1 Nsuka	Ir. Topo. Chef des travaux	2		
7	Atatela Anipap	Katundulu Ambus	Directeur	Atatela Anipap Onsal	Conseiller	Bolo	Ingenieur Agronome	
8	AUTOZA	Kesende Mundeke	Directeur Regional					
9	AUXELTRA	Patrick DeWilde	Directeur General	Kayitana Imanzi	Directeur Tech-Commercial	Edouard Chvatal	Directeur Financier	
10	AZCB ASBL	Frere Apple Van Wee	Resonsable Technique	15 Buloba	Conducteur des travaux	7		
11	Bal-Meyel	Bal-Meyel Lukobo	Directeur	7 Mpala Mpeab'Aten	Administrateur	7 Bier via Mateko		
12	Bama	Ngengi Sangela	Directeur Technique	Alozine Baluka	Dir. Admin. et Financier	Manima	Secrétaire Administratif	
13	Bamus & Fils	Muvumu	Gerante	3 Pengela	Moniteur Agricole	3 Ndungi Mayaya	Secrétaire	3
14	Banda							
15	Baseho & Cie	Mutshipule	Conducteur des travaux	33 Manzali	Chef de Chantier	31 Mampama Nganga M.	Secrétaire Administratif	36
16	BAT/Lunkuni	B. B. Johnston	Administrateur financier	3 Mulumba Lukoji	Administrateur	15 Monsansa Amondala	Directeur regional Lunkur	
17	BATEC							
18	Belle-Vue	Kisanfumu	Gerante	4 Kalabayo	Vendeuse	2		
19	Bieye Mafuta							
20	Bitshi Ingombe							
21	Bokoil							
22	Bongibo	Mamoko-Mukwa Mp	Directeur Commercial	17 Bongibo Mankiem	Directeur Administration	16 Kwete Mbope	Secrétaire de direction	14
23	Bonkui SPRL	Tassin Hubert	Associe, Gerant toto	20				
24	Bosama	Nsama Bokulaka	Capita	5 Ngolenga	Capita	5		
25	Bouryaba							
26	Brig. Agri-Artis.							
27	Bumpy	Ngunga Pesanga	Agronome	3				
28	CADESCO							
29	CADULAC	Mbumaka Ipodjah	Administrateur Directeur Fin.	1 Lessedjina Ikware	Pres. d'hon. du com. de gest.	1		1
30	CAICO/Punza	Sangwa-Nyamondo	Administrateur Ass. (Kin)	7				
31	Carri. Kisanza	Monga Mwenge M.	Gerant	4 Konkwa Kipay	Conducteur	18 Mulembwa	Conducteur Adjoint	5
32	CBI	Chiwengo Animato	Membre du Conseil	4 Chiwengo Kazadi	Super-viseur	4 Chiwengo Ntombi	Comptable	4
33	OCB SPRL	Munzimi Intshimi	Directeur gen. adjoint (Idiofa)	2 Shango Loby	Dir. att. adm. cent. (Kin)	17 Tumapidi Yumbu	Chef scé cial et prod. (Idiofa)	22
34	CEA	Muoka Nzau	Directeur Gerant	5 Nkie Mukoo	Conducteur des Travaux	4 Moba Nsele	Chef de secteur/plateau	7
35	CEADER							
36	CEDECOM							
37	CEKO	Wimaya Ekwok	Commissaire du peuple	Munziema Zoba	Gerant (Kin)			
38	CMIS-SAEZA	Cillario Sabino	Operant					
39	CODAL	Mungwele	Directeur administratif/fin.	3 Kibala	Coordinateur des projets	2		
40	Coli. Bange	Lames Ngung Nykr	Gestionnaire	16 Yonge	Comptable	10 Ndonda	Intendant	8
41	Coli. Kabongo							
42	Coli. Kapla	Impiobi	Comptable	10 Kapala	Secrétaire administratif	9 Mumpenge	Greffier	7
43	Coli. Mateko	Nkie Llanga Banaba	Secrétaire a la JMPR	9 Kasela Mpa-Mpum	Charge travaux publiques	20		
44	Coli. Mwat-Yav	Mwin Kapang		Muko Ntambu				
45	Comite de Dev							
46	COMUELE	J. Ch. Dienst	D. G. A.	3 Badibanga	Fonde de pouvoirs	4 M. Cornez	Gerant Bulungu	1
47	COOPEMI							
48	Cooper. Kasali							
49	Cooper. Ndul	Kadasu Mbabu	Vice-President	17 Kadiamtsa Mbabu	Secrétaire	17 Kadiamba Gibuamuma	Mandataire (Kin.-Lemba)	17
50	COPAM	Ilunga Mathanga	Vice-President	3 Kimembe Zongwe	Secrétaire-Tresorier	3 Nsonkonsya Kalinde	Conseiller technique	3
51	CORETI	Varjabedian	Administrateur	8 Dimier		8		
52	CPSAC SPRL	Ikwo Lessoye	Directeur Finance	1 Mvimvi Diamono	Dir. directeur comm. et marke	1 Vungussako Anibino	Directeur Juridique	1
53	DAEP/Kwiliu							
54	DAGRIM	Mudimba	Administrateur	9				
55	DAK	Vaudeno Franco	Administrateur Gerant	Cillario Sabino	Administrateur Gerant			
56	Dev. Rur. KML							
57	Dioc. d'Idiofa	Abbe Kadong M. K.	Secrétaire adjoint	5 Abbe Edziambusi K.	Procureur	3		
58	Ebangabila	Lamiele	Directeur	27 Isasi	Secrétaire de direction	27		
59	ECZ Mawange							
60	ECZ/CPZ							
61	EES/SELEC	Kayembe Kabamba	Administrateur-Gerant	8 Paswanzambi Bebe	Directeur Technique	8		
62	EIC SPRL	Kabwa Mputu	Directeur Coordonnateur	Halaf	Chef de Personnel			
63	Ele	Nkoto Nsakang	Secrétaire et comptable	6				
64	ELOBA							
65	Epaba Mamba	Mumbami Ingoto	Gerant	7 Ezey	Sentinelles	2		
66	ESTAGRICO	Relecom Michel	Vice-President C.A.	8 Boudailler Bernard	Administrateur Delege	4 Bosa Ngutani	Directeur de Production	2
67	FEARDE							
68	FERMANI	Ndongo Mapepe	Coproprietaire (Kin)	4 Mingindu Ngwambano	Gerant des Fermes (Idf.)	10 Mbimi Malio	Surveillant (Idiofa)	4
69	Ferme Katikula	Mutombo Kayumba	Directrice	Mushota	Gerant ferme			
70	Ferme Sagalis							
71	Fernandes	da Silva Manuel	Chef Service Technique	7 Mubiala Koraba	Directeur Siege Bulungu	x		
72	Forrest	A. Labeau	Directeur technique	2 T. E. Forrest	Fonde de Pouvoir	3		
73	GAPAK SPRL	du Chateau Marcel	Consultant	2 Ndeke Kake	Coordnatrice	2 Yala	Chef d'agence	2
74	GCM Develop.	Botula Manyala L. L.	Delegue General Adjoint	1 Kiadi Matsuela numb	Administr. Dir. Technique	15 Kasenge Uteta	Directeur Financier	15
75	Gr. Fallay	Fallay Abdal'la	Chef du Personnel	3 Amuri Kabombolima	Secrétaire	3 Boga Kalunga	Gerant	1
76	Gr. Kibwe							
77	Gr. Masudi							
78	Gr. Muganga	Nyembo Lubusu	Directeur	1 Mbayo Wa Mbayo	Conducteur des travaux	1 Mulomba Kibangula	Chef des Chantiers	1
79	Gr. Munung							
80	Gr. NNM							
81	Groukat-Azaci							
82	Gusema	Lunzembo	Gerant (Masimanimba)	3 Kapanga	Secrétaire (Masimanimba)	3 Muheta Luyinda	Magasinier/Depot (Masim)	6
83	HPK	Verstraete Alfred	Dir. Adm. et Fin. (Fumu-Putu)	1 Kapay Bin Karl	Direct. d'exploit. (Fumu-Pu)	1 Kayenga	Chef du personnel (Fumu-)	4
84	HSK	Tukeyenzi	Gerant	15 Ilaka	Responsable secteur comm.	14		
85	Huilerie Yelen	Mudiemba	Chef de Poste Yelenge	4 Kitambala Khubi	Ass. Ger. Av. Port no 10 Bul	13 Landja Kanika	Assistant gen. adjoint	11
86	Ibeka & Fils	Bilumbu Bia Nzambi	Directeur Adm. et Finance	3 Kabamba Mapasi, Ing	Directeur Technique	3 Kabaya Marambilla	Gerant	3
87	IBOLO							
88	IBWE							
89	Interwood	Herzog	Actionnaire Approvision.	1 Burn	Actionnaire Prod. et Techn.	1 Walmeier	Directeur Technique	1
90	IRIZ Manono	Mr. Menken Alex	Administrateur	Mukalay Kahala	Commiss. peuple Conseiller	Mukalay Mulongo	Representant Lubumbashi	
91	ISU Nka	Kinkie Mubiala	Directeur d'exploitation	18 Kaifa	Gerant	4 Mbwetete	Transitaire	4
92	ITUTU Mbwise							
93	JVL-SIEFAC	Jean-Pierre Daub	Directeur					
94	Kabamba Mal.	Senga Masuku	Directeur	13 Membo Baruti	Comptable Chef	10 Kalunga Lwamba	Chef du Personnel	
95	Kabamba Tal.							
96	KAGA							
97	Kakesa	Mbalaka	Gerant	10				
98	Kakwata							
99	Kalema							
100	Kalu & Fils	Kongolo Amunazo	Gerante	25 Mwaywa Masimango	Secrétaire-omptable	2 Mwaywa Wa Nkulu	Capita	2
101	Kamwanga	Siku Mbili Mwamba	Chef du personnel	3 Mali ya Bwana	Chef de chantier	2 Ilunga Kombayulu	Secrétaire	2
102	Kanus	Kamwanyu Mpiana	Associe	12 Mr. Gabriel	Gerant (Kikwit)	6 Pupu	Chef du personnel	6
103	Kapend	Mwad Mukendi	Gerante	14 Mununga Kasongo	Agent Commercial	8		
104	Kapiten							
105	Kasanza	Kasandji	Directeur Financier	10 Matele Lwanzu	Conducteur de Travaux	10 Okoue Emues	Secrétaire	9
106	Kikata							

Table I.H. Description, Organizations with a local econ. interest in Road Maintenance 99

		Seniority #2		Seniority #3		Seniority #4	
	Short Name	Name Executive #2	Title Executive #2	Name Executive #3	Title Executive #3	Name Executive #4	Title Executive #4
107	Kimbondja						
108	Kishwe	Ntomo Sukar	Directeur	10 Ngamu Biemi	Agronome	5 Malanka Kisele	Capita (Gerant)
109	Kisimba Mbele	Kisimba Kambatshur	Directeur des Ets.	18 Kisimba Lumbu	Directeur des travaux	14	
110	Kissimba	Kissimba Ngongo	Directeur Adjoint	7 Mandapta Multemedi	Superviseur des Travaux	7 Masudi Wa Lukoma	Chef Comptable
111	Kumepende						
112	Lendor Int'l Ltd	M. T. Burton	Directeur				
113	Lengelo						
114	Limalou						
115	Lozo	Kabangu	Associe	6 Ganzumba Soghi	Associe		
116	Lumbu Useni	Nyembo Kisholwa	Directeur	5 Nyembo Ombeni	Chef du Personnel	3 Mugeya Wa Mbali	Comptable
117	Luminaza						
118	Luza	Luemba M'Buela	Enfant	Luemba Puele	Enfant		
119	Ma N'Gwalu	Mangoma Mapetu	Gerant	2			
120	Mabeka	Sala Ntela	Secreteire	Mabobo Ngonda	Comptable	Mungenga Kiaku	Chef des plantations
121	Mafuta Sala						
122	Maieb Majake	Londja Kanika	Conseiller financier	13 Abukani Mukweto	Gerante deleguee	12 Kengbamgba	Gerant (Bandundu)
123	Maison Luthom	Ndikita Kahungu	Directeur financier	6 Mazunda Saela	Directeur commercial	6 Nzonzo Mavula	Gerant
124	Mali Ya Butoto	Lumbu Mwendelobe	Gerant	11 Luhembwe Bukosi	Comptable	2	
125	Mambiki & Fils						
126	Manzanze						
127	Matele						
128	Matu Be-Endi						
129	Mbongo	Gutubane El-Nzwei	Secreteire	Mampasi Nguala	Comptable	Kitanbala Mananga	Charge des activites
130	Mbuku Nuni	Nsomwe Nsokango	Ingenieur, Dir. Technique	5 Kasuwa Mupangi	Ingenieur, Chef de chantier	5 Van Akker	Pere missionnaire, superv.
131	MC Kabongo	Pere Thomas Tarimo	Missionnaire	10			
132	MC Kasaji						
133	MC Sandoz						
134	MDZ	Boreux Eugene	Directeur General	30 Le Morvan Yves	Dir. Gen. Commercial	20	
135	Meclamo						
136	Mindanga						
137	MM						
138	MMK & Fils	Kankolongo Kabengele	Directrice Generale Adjointe	5			
139	Mombembe						
140	Mputu Mbwe	Nsomwe Nsok	Ingenieur	3 Masiba	-	3	
141	Mputu Mputu	Mputu Kanku	Gerant	9 Katulushi Mupota	Charge de transport	4 Kinaka Lutumba	Conseiller
142	Mputu Nkanga	Mukandikwa K.	Gerant adjoint et comptable	5 Mpase Bantone	Responsable agricole (Ing.)	18 Masumbrila	Gerant (Inongo)
143	Mudimu						
144	Mulala Amine	Ngoy Kalala	Gerant de l'etablissement	4 Ngoy Kakudi	Vendeur	4 Ngoy Luembo	Vendeur
145	Mumba						
146	Mungala						
147	Musey Kavuka	Musey Ngwanga	Administrateur Delege	15 Lubanza Mvumbi	Gerant	12 Mafuta Teko	Presidente Adjointe
148	Muyumba						
149	Muzinga	Kimpanga	Agronome zootechnicien				
150	Mwaku Yala	Uzange	Gerant	5 Mauungu Mbunga	Ingenieur	5	
151	Mwalejima	Kampew Kabemb	Directeur General	7 Kavula Sesemb	Comptable	5 Wadianga	Ingenieur Fonct. Dirigeant
152	Ndinge						
153	Nepa						
154	Ngunza						
155	Nki Bibwi						
156	Nkita-Zaire	Mosikwa Mbenga	Administrateur assoc.	4 Ghislain Claude Robert	Admin. associe (Belgique)	4 Sorel Patrick Ghislain	Administrateur associe
157	NMK	Tshomba Lumbu	Directeur Adjoint	Mwana Ngoyi Bwemb	Secreteire		
158	Nsankien						
159	Nunge-Lubeye						
160	Nyembo Song						
161	Nzawa-Sunge	Kabaka Mwana Loba	Responsable Administratif	10 Pindi Mwana Zanga	Charge d'exploitation	8 Sala Ukuko	Charge des travaux routiers
162	Nzundu	Ipume Kasane	Capita	18 Nzundu Kapita, Jr	Capita	18	
163	PAK ASBL						
164	Pakhe & Fils	Mwanangombe	Superviseur	3 Muwala Loso	Directeur chantiers	3 Pakhe Kapuka fils	Secreteire
165	Paroisse Budi	Pere Joseph Hont	Cure Paroisse de Budi				
166	Paroisse Yasa	Abbe Guya		Curee Pere Le Jeune	Cure, Paroisse de Yasa		
167	PDK ASBL	Nkawa Ndikuna	Secreteire de coordination	3 Nkumbi Nzada	Secreteire Administratif	3	
168	Pokiebe						
169	PRODECAT						
170	Projet Vie	Pasteur Kitata Ibandi	Vice-President	1 Mawangu B. Ibanda	Tresoriere	2 Mwana Ngudihika	Directeur de projet
171	RAK						
172	SAC	Kayinga Sosala	Directeur technique regional	9			
173	SAFRICAS	Lienard Carl	Directeur Financier	10 Van Berg Claude	Ingenieur Principal	15 Bauwens Christian	Ingenieur Principal
174	Sambumba						
175	Sampetro	Nuno Amaro Sampedro	Directeur Financier Associe	50 Carlos Amaral	Gerant (Masi-Manimba)		
176	Sange Mfumu.						
177	Sange-Sam	Ngonape Nd.	Charge commerciale	15 Kabanga	Secreteire Admin.	3 Ibwidit	Caissier
178	Sappe						
179	SICA SPRL	Tutu Nsabar Yul	Secreteire General	19 Muyenga Muna	Administrateur	12	
180	Simwa						
181	SOCOA	Malonda Malonda	Dir. technique (CORELEC)	8 Baya DI Mavinga	Resp. chantiers (CORELEC)	14	
182	SOCOBU						
183	SOGELM	Lombe Yatanda	Coordonnateur Technique	1 Mazula Ndombolosi	Coordonnateur Adm. et Fin.	1	
184	Soleil Couch.						
185	SOZACOT	Guilbeault Pierre	Directeur Adjoint				
186	SOZAGEC	Ferretti Aldo	Administrateur Directeur	16 Ramasco Paolo	Administrateur Dir. Techniq	16	
187	Success Ya	Kitenge Tuomeane	Gerant des Ets.	13 Muhi Mbi Mulobani	Relation publique	76 Kitenge Borone	Caissier des Ets.
188	Sulka						
189	Swanepoel	Johannes Bloemenda	Admin. Directeur Technique	30 Gerard Vandentorren	Directeur Technique	11	
190	Tabasenge						
191	Tambwe Hana						
192	Tambwe Tsh	Keleng A Rshikwand	Administrateur Gerant	17 Muteb Sakaril	Comptable	15 Nkaj Tambwe	Co-Gerante
193	Thoms Bi-Yam	Kimfeme I	Secreteire Gerant	5 Kimfeme III	Moniteur agricole	2	
194	Toko Wangata	Ngulamdosu	Conseillere	15 Toko Wa Tita	Comptable	15	
195	Tomanko						
196	Tosangena	Bobuta Ntendy	Administrateur Gerant	5			
197	Tout depend						
198	Trans Kwango						
199	TRAVAS	Mukasa Ya Mantway	Directeur financier	3 Lukengo Bikala	Directeur technique (Kenge)	3 Kunga Uba Zando	Chef d'agence
200	Tshata						
201	Tshifanaken						
202	Twende Mbele						
203	UGZ						
204	Umoja						
205	UNIPAZA	Bwansa Annung	Administratrice	5 Mfumu Kwani	Planificateur	5 Ntwa Kebanzo	
206	Uyinduyala	Kazaka	Gerants des Ets.	6 Mbala-Mayadila	Magasinier-Technique	6 Kazanga Lumeya	Prefet des Etudes
207	Vemajco						
208	Zabi-Zabi						
209	Zaitchim	Lukusa Mutombo	Ing. Technique	3 Kalonjiwa Mukeba	Conseiller Fin.	1 Mutombo Nsensa	Comptable
210	Zangio	Muzinga Mwandumba	Gerante	27			
211	ZUNA	Kimfengi Gombande	Secreteire	2 Kimbamfu	Charge des routes	4	



ANNEX II, Maps and Traffic Counts

Map 1 is copied from World Bank project documents. I apologize for not asking for permission to copy it, knowing that an exception could not be made for me.

Various factors should be considered in interpreting the traffic counts in Table II.A (which are themselves derived from Maps 2 through 7). The checkpoints used are concentrated on strategic roads and intersections, which would exaggerated average daily traffic numbers relative to the many rarely used roads. The counts were also done mostly in the rainy season (winter months), however, which would significantly underestimate the summer traffic for agricultural trade in seasonal crops such as coffee and maize, and would also reflect left traffic because of impassable mud. A further consideration is that traffic flows have undoubtedly further declined in the two to four years since the traffic counts were made. While my accumulated totals cannot be considered exact, they do underscore that Zaïrean motorized road use is in general very low outside of the paved road network.

The OR traffic counts do not include data for local interest rural roads, so I use the World Bank's 1983 estimate of 0.25 ADT found in the Transport Sector Memorandum. My travels in the summer of 1989 suggest to me that actual levels are far lower.

Credit for making the traffic count maps goes to a French engineer at OR Kinshasa whose name I have unfortunately lost, but to whom I am extremely grateful.

Office des Routes Average Daily Traffic Counts

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From 10-11/86 or 12/87 except for some 2/88 Équateur counts

		Number of Checkpoints	Max ADT	Min ADT	Ave ADT	Volume Distribut'n	Portion Trucks
Shaba	National Roads	9	465	2	84.1	100%	36%
	Regional Priority	1	0.25	0.25	0.3	0%	22%
	Regional Secondary	1	0.25	0.25	0.3	0%	0%
	Total Roads	11	465	0.25	68.9	100%	36%
Haut-Zaïre	National Roads	10	40	0.25	8.9	83%	55%
	Regional Priority	8	12	1	2.6	19%	40%
	Regional Secondary	7	2	0.25	0.9	6%	57%
	Total Roads	25	40	0.25	4.3	100%	52%
Bas-Zaïre	National Roads	5	824	5	342.0	99%	48%
	Regional Priority	1	16	16	16.0	1%	57%
	Regional Secondary	0					
	Total Roads	6	824	5	287.7	100%	48%
Équateur	National Roads	11	33	1	7.5	80%	70%
	Regional Priority	7	6	1	2.6	18%	57%
	Regional Secondary	1	3	3	3.0	3%	56%
	Total Roads	19	33	1	5.4	100%	69%
Kivu	National Roads	7	490	0.25	92.0	100%	41%
	Regional Priority	4	1	0.25	0.4	0%	62%
	Regional Secondary	1	1	1	1.0	0%	55%
	Total Roads	12	490	0.25	53.9	100%	41%
Bandundu	National Roads	9	140	0.25	23.0	74%	67%
	Regional Priority	14	11	1	4.4	22%	53%
	Regional Secondary	8	8	1	3.4	10%	55%
	Total Roads	31	140	0.25	9.0	100%	63%
Kasaï-Occid.	National Roads	4	70	8	25.3	85%	60%
	Regional Priority	5	9	6	3.6	15%	39%
	Regional Secondary	0					
	Total Roads	9	70	6	13.2	100%	57%
Kasaï-Orien.	National Roads	6	286	2	51.0	97%	53%
	Regional Priority	3	4	0.25	2.1	2%	37%
	Regional Secondary	3	1	0.25	0.8	1%	55%
	Total Roads	12	286	0.25	26.2	100%	53%
Total Zaïre	National Roads	61	824	0.25	63.9	96%	55%
	Regional Priority	43	16	0.25	3.3	4%	49%
	Regional Secondary	21	8	0.25	1.9	1%	53%
	Total Roads	125	824	0.25	32.4	100%	55%

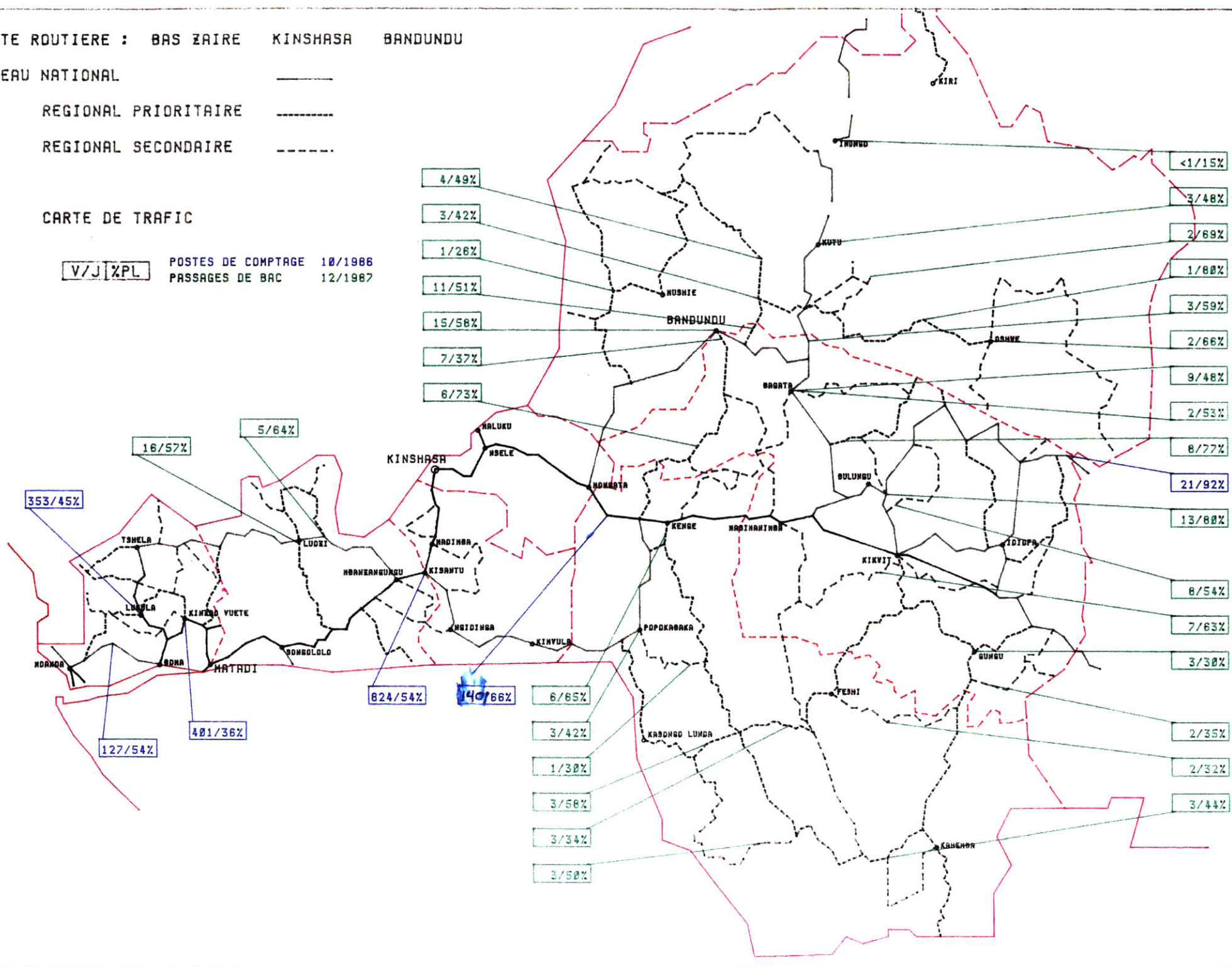
Map 2. Maximum ADT Counted on National and Regional Roads



REGIONAL SECONDAIRE

CARTE DE TRAFIC

V/J %PL POSTES DE COMPTAGE 10/1986
PASSAGES DE BAC 12/1987



ARTE ROUTIERE : SHABA

ESEAU NATIONAL

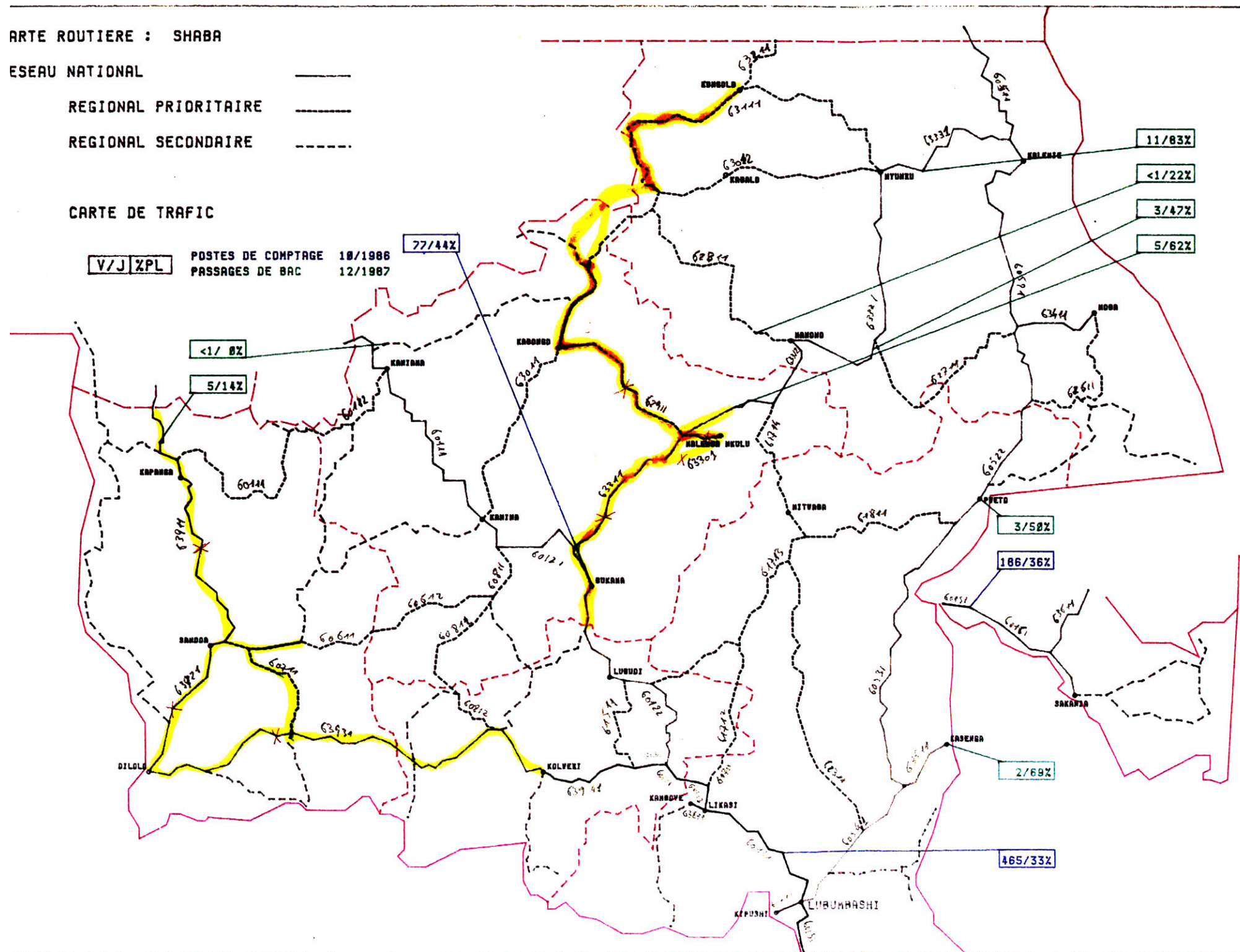
REGIONAL PRIORITAIRE

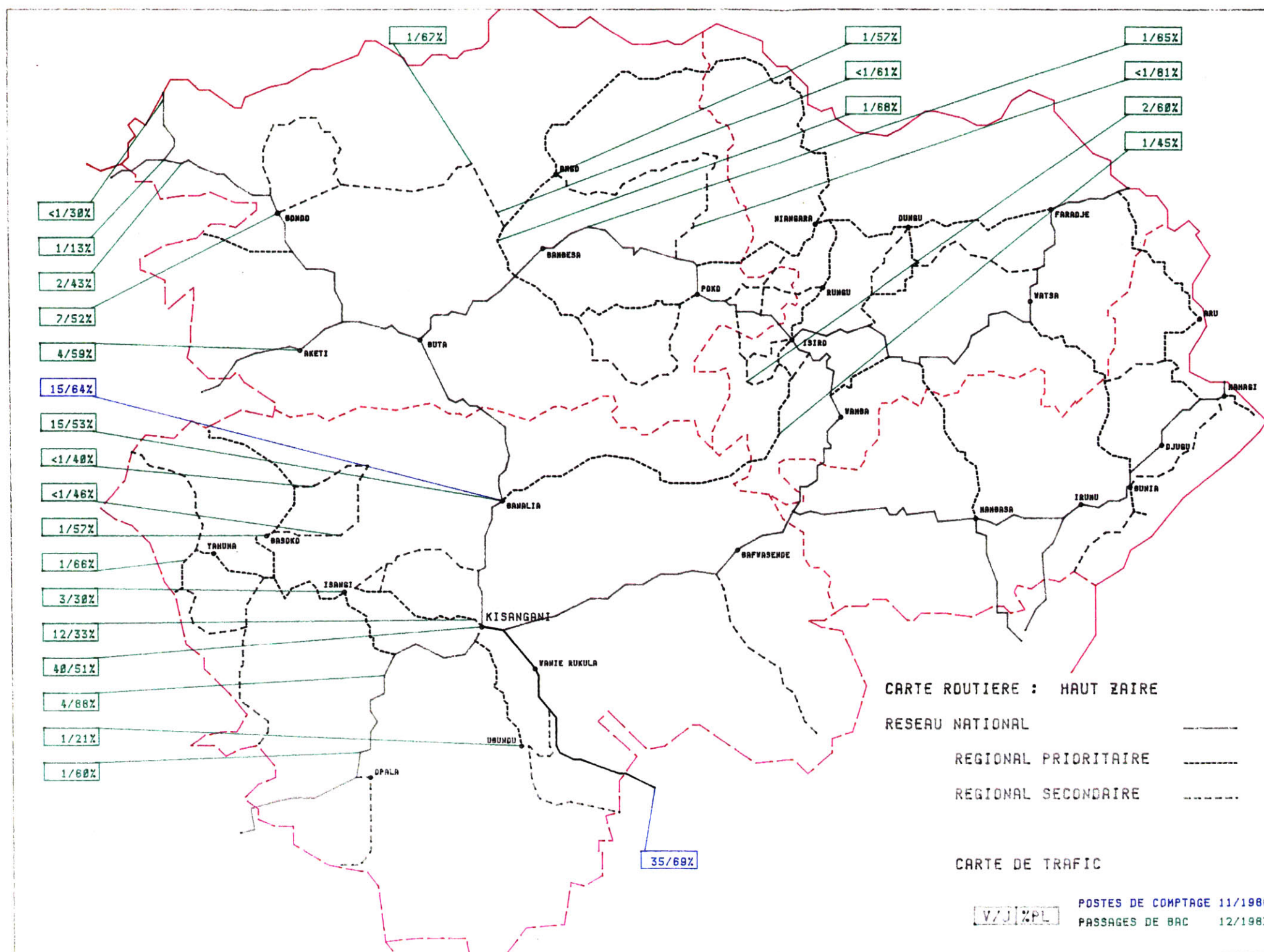
REGIONAL SECONDAIRE

CARTE DE TRAFIC

V/J %PL

POSTES DE COMPTAGE 10/1986
PASSAGES DE BAC 12/1987





CARTE ROUTIERE : EQUATEUR

RESEAU NATIONAL

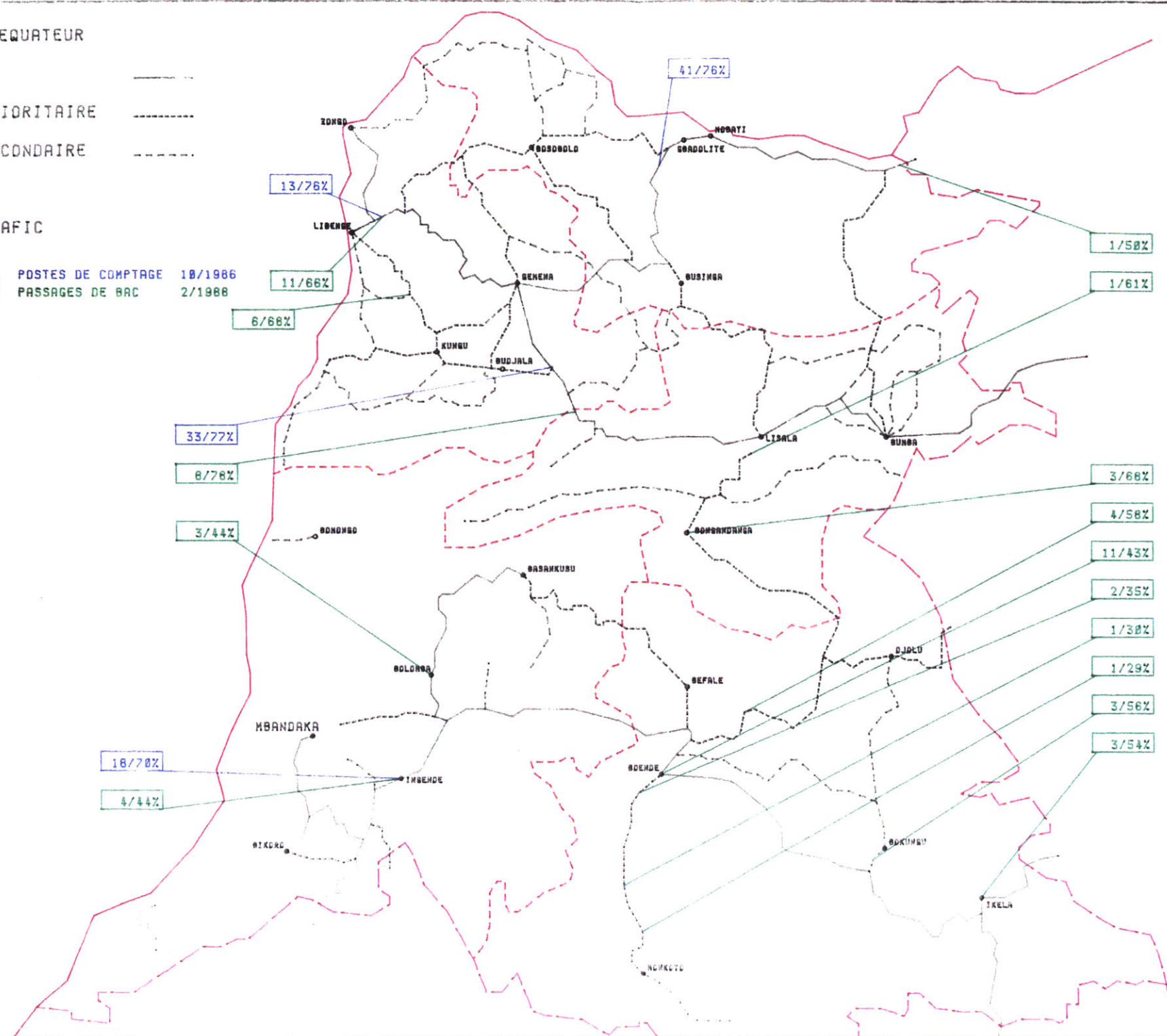
REGIONAL PRIORITAIRE

REGIONAL SECONDAIRE

CARTE DE TRAFIC

V/J %PL

POSTES DE COMPTAGE 10/1986
PASSAGES DE BAC 2/1986

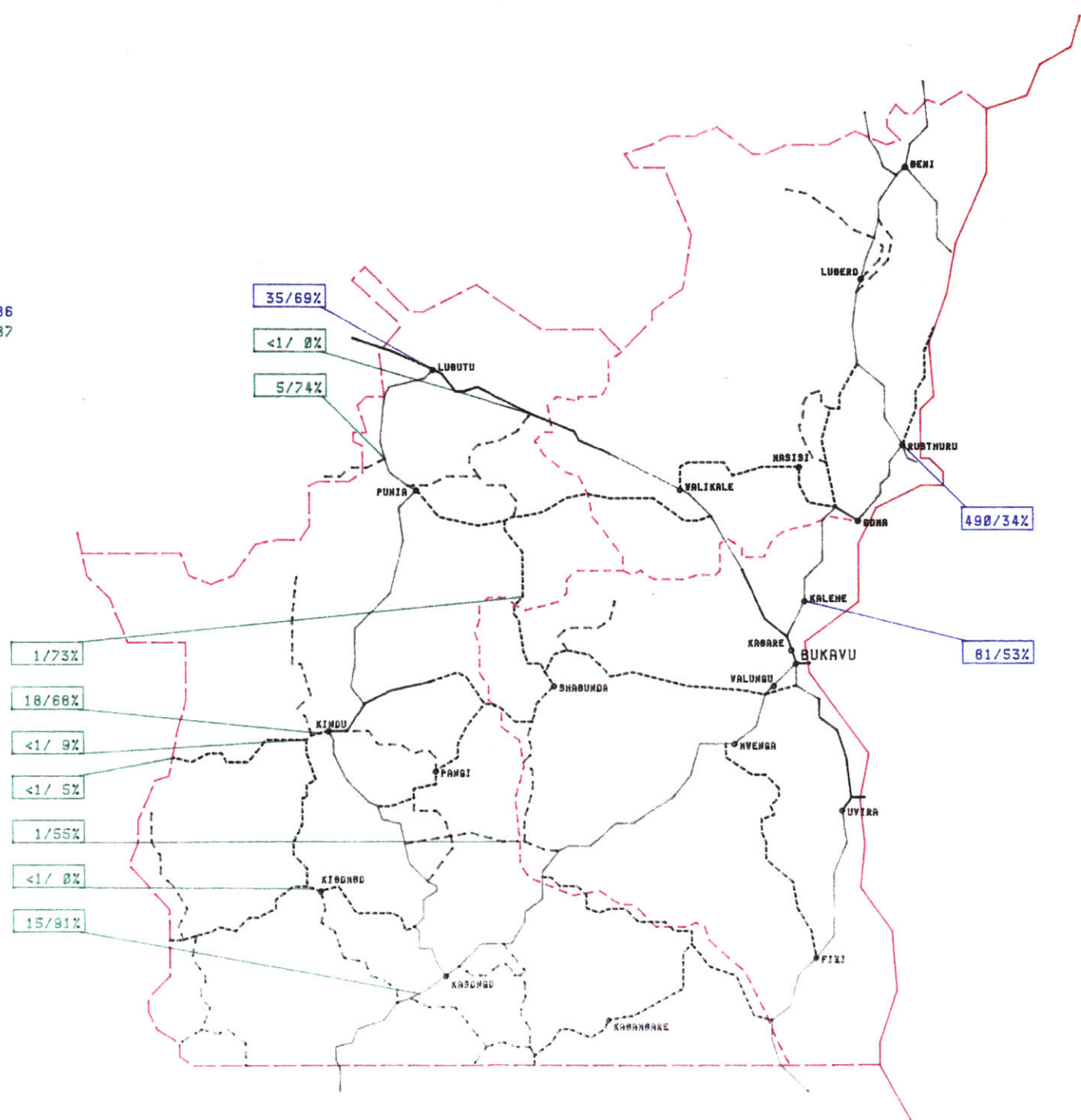


RESEAU NATIONAL

REGIONAL SECONDAIRE

V/J %PL

POSTES DE COMPTAGE	11/1986
PASSAGES DE BAC	12/1987



CARTE ROUTIERE : KASAI W KASAI E

RESEAU NATIONAL

REGIONAL PRIORITAIRE

REGIONAL SECONDAIRE

CARTE DE TRAFIC

V/J XPL

POSTES DE COMPTAGE 10/1986
PASSAGES DE BAC 12/1987

1/28%

1/56%

13/39%

10/39%

70/66%

8/71%

5/13%

5/33%

6/64%

2/44%

1/67%

4/44%

4/61%

5/34%

2/29%

286/53%

1/56%

5/72%

4/60%

<1/ 0%

<1/ 0%

